

SERVICE MANUAL
MODEL 1701/1702 MONITOR

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C1701/C1702 COLOR MONITORS PRODUCT SPECIFICATION

GENERAL DESCRIPTION

The C1701 and C1702 are quality, high resolution color monitors, designed to maximize the video capabilities of your Commodore Computer. They give you a superior color picture that enhances your computing experience and are completely compatible with all Commodore equipment.

SCREEN SIZE

13 Inch (screen measured diagonally). NTSC color standard

DISPLAY

40 Columns x 25 lines

RESOLUTION

1000 Characters per screen

CONTROLS

Color, tint, brightness, contrast, volume, vertical hold and horizontal hold

AUDIO

Built-in audio amplifier and speaker

INPUTS

Chrominance, luminance, composite video and audio

OTHER FEATURES

Video cassette recorder compatible (1V p-p, 75 Ohms)

COMPUTERS

Commodore 64, VIC 20, Plus/4 and C16

POWER REQUIREMENTS

120 Volts, 60 Hz, 0.85 Amps

POWER CONSUMPTION

87 Watts

All specifications subject to change without notice.

SAFETY PRECAUTIONS

1. This product contains special designed circuits and components that were designed for safety purposes.

For continued protection, changes should not be made to the original design unless authorized in writing by the manufacturer. Replacement parts must be identical to those used in the original circuits. Service should be performed by qualified personnel only.

2. Alterations to the design or circuitry of this receiver should not be made. Any design alterations or additions will void the manufacturer's warranty and will further relieve the manufacturer of responsibility for personal injury or property damage resulting therefrom.
3. Many electrical and mechanical parts in MONITOR sets have special safety-related characteristics. These characteristics are often not evident from visual inspection nor can the protection afforded by them necessarily be obtained by using replacement components rated for higher voltage, wattage, etc. Replacement parts which have these special safety characteristics are identified in the parts list of this service manual. Electrical components having such features are identified by shading on the schematics and by (*) on the parts list in this service manual. The use of a substitute replacement which does not have the same safety characteristics as the recommended replacement part shown in the parts list may create shock, fire, or other hazards.
4. If any repair has been made to the chassis, it is recommended the the B₁ setting be checked or adjusted (See ADJUSTMENT OF B₁ VOLTAGE).
5. The high voltage applied to the picture tube must conform with that specified in this service manual. Excessive high voltage can cause an increase in X-Ray emission, arcing and possible component damage, therefore operation under excessive high voltage conditions should be kept to a minimum, or should be prevented. If severe arcing occurs, remove the AC power immediately and determine the cause by visual inspection (incorrect installation, cracked or melted high voltage harness, poor soldering, etc.). To maintain the proper minimum level of soft X-Ray emission, components in the high voltage circuitry including the picture tube, must be the exact replacements or alternatives approved by the manufacturer of the complete product.
6. Do not check high voltage by drawing an arc. Use a high voltage meter or a high voltage probe with a VTVM. Discharge the picture tube before attempting meter connection by connecting a clip lead to the ground frame and connecting the other end of the lead through a 10kΩ 2W resistor to the anode button.
7. When service is required, observe the original lead dress. Extra precaution should be given to assure correct lead dress in the high voltage circuit area. Where a short circuit has occurred, those components that indicate evidence of overheating should be replaced. Always use the manufacturer's replacement components.

SAFETY PRECAUTIONS (Continued)

8. ISOLATION CHECK (SAFETY FOR ELECTRICAL SHOCK HAZARD)

After re-assembling the product, always perform an isolation check on the exposed metal parts of the cabinet, screwheads, cable jacks, controls shafts, etc., to be sure the product is safe to operate without danger of electrical shock.

(A) DIELECTRIC STRENGTH TEST

The isolation between the AC primary circuit and all metal parts exposed to the user, particularly any exposed metal part having a return path to the chassis should withstand a voltage of 1,100V AC (r.m.s.) for a period of one second.

This method of test requires test equipment not generally found in the service trade.*

(B) LEAKAGE CURRENT CHECK

Plug the AC line cord directly into the AC outlet (do not use a line isolation transformer during this check). Using a "Leakage Current Tester", measure the leakage current from each exposed metal part of the cabinet, particularly any exposed metal part having a return path to the chassis, to a known good earth ground (water pipe, etc.). Any leakage current must not exceed 0.5mA.

*** ALTERNATE CHECK METHOD**

Plug the AC line cord directly into the AC output (do not use a line isolation transformer during this check). Use an AC voltmeter having 1,000 ohms per volt or more sensitivity in the following manner. Connect a 1500Ω 10W resistor paralleled by a $0.15\mu\text{F}$ AC-type capacitor between an exposed metal part and a known good earth ground (water pipe, etc.).

Measure the AC voltage across the resistor with the AC voltmeter.

Move the resistor connection to each exposed metal part, particularly any exposed metal part having a return path to the chassis, and measure the AC voltage across the resistor. Now, reverse the plug in the AC outlet and repeat each measurement. Any voltage measured must not exceed 0.35V AC (r.m.s.). This corresponds to 0.5mA AC (r.m.s.).

CAUTION:

When troubleshooting, with power applied, use an isolation transformer and confirm that the CRT earth wire is connected to the CRT socket board and the chassis.

ADJUSTMENTS – PURITY, CONVERGENCE AND WHITE BALANCE

PICTURE TUBE

The picture tube is a precision in-line gun type. For this picture tube, dynamic convergence is carried out by a precision deflection yoke which eliminates the use of a convergence yoke and a convergence circuit. The adjustment of the picture tube is therefore made easier as only the adjustment of static convergence by using a magnet is enough. The deflection yoke and purity/convergancy magnets assembly has been set at the factory and requires no field adjustments.

However, should the assembly be accidentally jarred or tampered with, some or all adjustment may be necessary.

COLOR PURITY & VERTICAL CENTER

Loosen yoke retaining clamp (Fig. 2-1). With a sharp knife, cut between the picture tube and the wedge. Remove wedges completely and clean off dried adhesive from the picture tube. PAINT is used to lock the tabs of the purity/convergence magnet assembly in place (Fig. 2-1). The paint must be removed with the end of a screwdriver before any adjustments are attempted.

1. Inject a Video Signal (RASTER) to the Video input terminal.
2. Let the purity tabs come in line horizontally as is shown in Fig. 2-3. A long tab should be in the same direction as the other short tab.
3. Move the yoke slowly backward.
4. Turn the green cut-off control to maximum and the red and blue cut-off controls to minimum. Then adjust the screen control so that the green band can be seen best. (Fig. 2-4)
5. Rotate the two tabs in the opposite direction with them kept at an angle. Move them in either direction so that the green band is centered on the picture tube.
6. Check the vertical center position by displaying a horizontal line. If incorrect, bring it to the center by rotating the two tabs, kept at an angle, together in either direction. (Fig. 2-5, 2-6)
7. Repeat steps 5 and 6 alternately until the green band and the vertical centre are in line.
8. Move the yoke slowly towards the bell of the tube so that the whole surface of the picture tube is filled with a pure green raster.
9. Turning the red cut-off control to maximum and the green cut-off control to minimum, check for pure red raster.
10. Turning the blue cut-off control to maximum and the green cut-off control to minimum, check for pure blue raster.
11. Secure yoke retaining clamp (do not install wedges at this time).

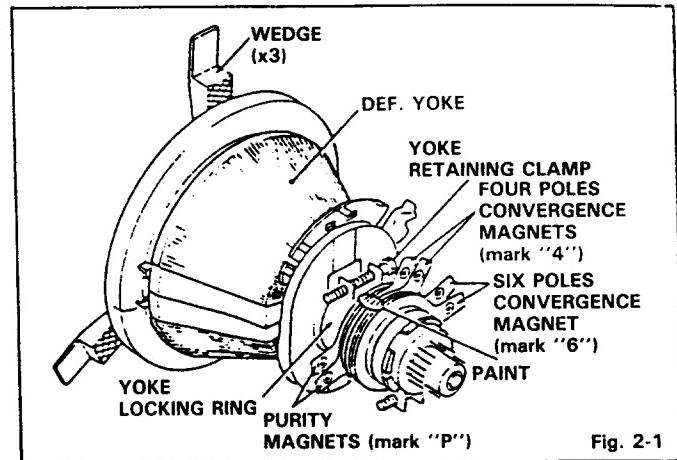


Fig. 2-1

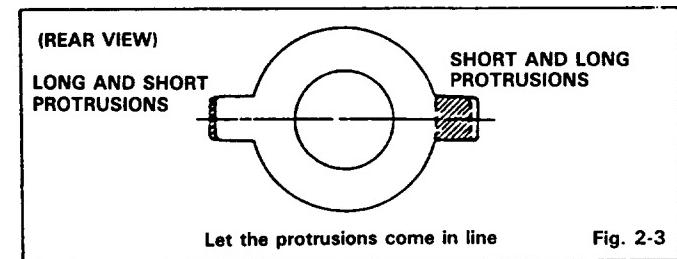


Fig. 2-3

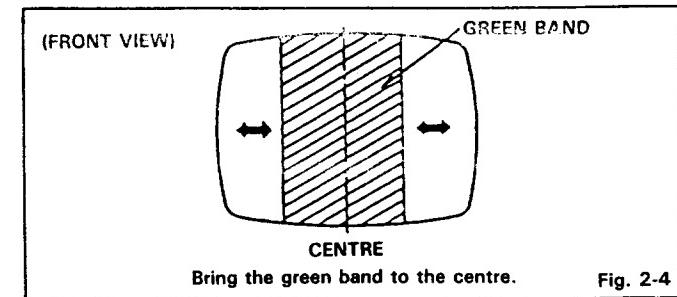


Fig. 2-4

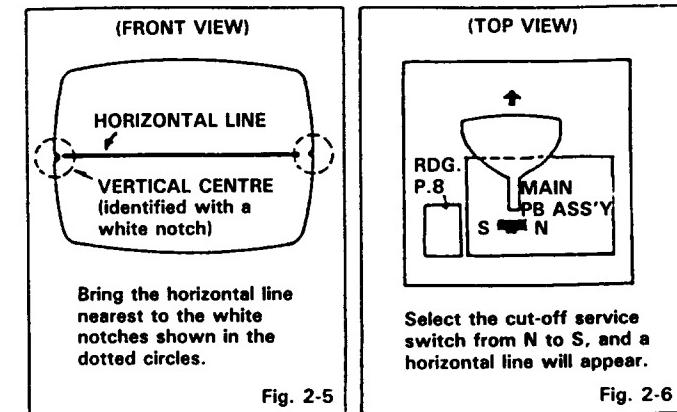


Fig. 2-5

Fig. 2-6

STATIC CONVERGENCE & DYNAMIC CONVERGENCE

Static convergence is achieved by four magnets located on the neck, nearest the base of the picture tube. The front pair of magnetic rings (closest to the purity tabs) are adjusted to converge the red and blue crosshatch lines.

The rear pair of convergence rings (closest to the base of the picture tube) are adjusted to converge the magenta (Red/Blue) and green crosshatch lines.

Dynamic convergence is achieved by tilting the deflection yoke, Up-Down and Left-Right.

1. Inject Video Signal (CROSSHATCH) to the Video input terminal and adjust BRIGHTNESS and CONTRAST control for distinct pattern.
2. Adjust the convergence around the edges of the picture tube tilting the yoke, up-down and left-right. Temporarily install one wedge at the top of the yoke. (Fig. 2-9, 2-10, 2-11)
3. Rotate the front pair of tabs as a unit to minimize the separation of the red and blue lines around the center of the screen. To adjust the convergence of red and blue, vary the angle between the tabs.
4. Rotate the rear pair of tabs as a unit to minimize the separation of the magenta and green lines. (Fig. 2-8)
5. Adjust the spacing of the rear tabs to converge the magenta and green lines.
6. Apply paint to fix 6 magnets.
7. Remove the wedge installed temporarily on the yoke.
8. Tilting the angle of the yoke up, down and sideways, adjust the yoke so as to obtain the circumference convergence. (Fig. 2-10, 2-11)
9. Insert three wedges to the positions as shown in Fig. 2-12 to obtain the best circumference convergence.
10. Secure wedges in position with the adhesive backing provided or use a non-conductive silicon/rubber compound.
11. White balance adjustment (Black & White tracking) can now be performed.

WHITE BALANCE ADJUSTMENT

(Black and White Tracking)

1. Inject a Video Signal (RASTER) to the Video input terminal.
2. Set the red and green drive controls for their mechanical center.
3. Turn the red, green and blue cut off controls and the screen control fully counterclockwise.
4. Change the service switch as shown in Fig. 2-6, to the "S" position.
5. Turn screen control slowly clockwise until a very faint horizontal line appears.
6. Turn the cut off control of the color which has appeared first, clockwise by about 10° and then adjust the screen control again so that the color may shine faintly.
7. Turn the other color cut off controls slowly clockwise until a reasonable white line appears.
8. Return the service switch to normal (N) position. (Fig. 2-6)
9. Adjust the red and green drive controls for best white highlights.

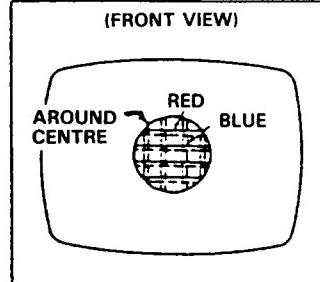


Fig. 2-7

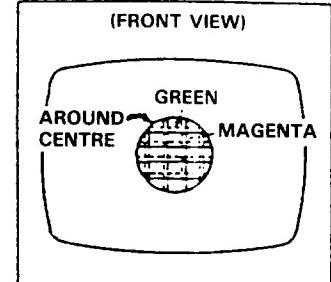


Fig. 2-8

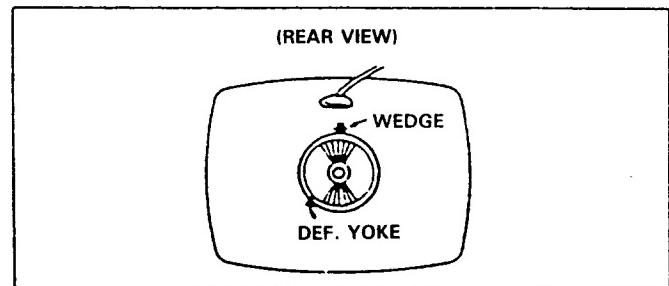


Fig. 2-9

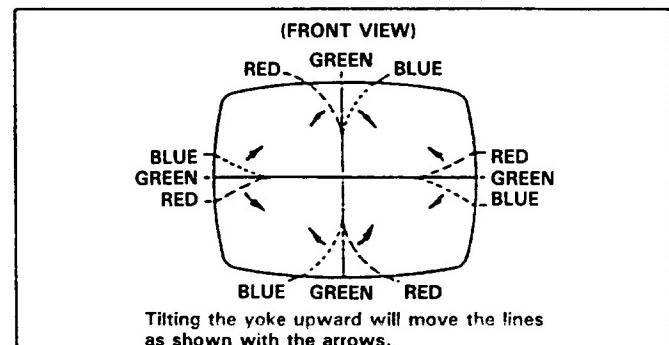


Fig. 2-10

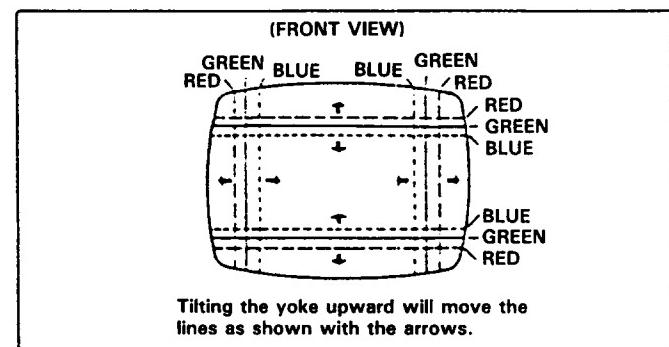


Fig. 2-11

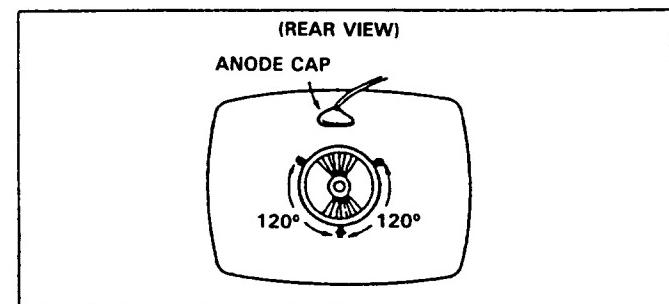


Fig. 2-12

NOTE: 1702 locations in ().

B₁ VOLTAGE — Inject a video signal

1701 (110V)

Regulate VR, R109, for B₁ adjustment so that Dc voltage between TP-91 and earth is 110 volts.

1702 (125V.)

Confirm that the voltage at TP-94 and IC901 pin 4 is 125 volts.

NOTE: Meter should be periodically calibrated at 20K ohms/volt.

FOCUS

Adjust the FOCUS control for best overall definition and picture detail at normal brightness and contrast.

VERTICAL POSITION

Adjust the V. center VR R428 (R429) to the optimum vertical picture position.

VERTICAL HEIGHT AND LINEARITY

1. Display a pattern which allows easy confirmation of symmetry (such as a circle or crosshatch).
2. Reduce the vertical size with the V. HEIGHT VR.
3. Adjust the vertical linearity with the V. LIN. VR.
4. Readjust the vertical height, so that the picture extends to normal size.

HORIZONTAL WIDTH

Adjust H. WIDTH control coil L503 (L522) by turning it with a hexagonal adjusting bar only if RIGHT and LEFT sides of picture can't be seen.

HORIZONTAL OSCILLATOR

1. Set the H. FREQ. VR to the mechanical center position.
2. Connect a jumper clip between TP-33A and TP-33B.
3. While rotating the H. FREQ. VR, R504, keep the picture stationary or slowly moving.
4. Remove the jumper wire.
5. Make sure that the set maintains horizontal sync, when signals are switched.

SUB TINT AND SUB COLOR

1. Display a picture and set the tint and color VRs on the control panel to the central click position.
2. Adjust the sub tint VR, R305 and sub color VR, R303 for the optimum display.

SUB CONTRAST AND SUB BRIGHT

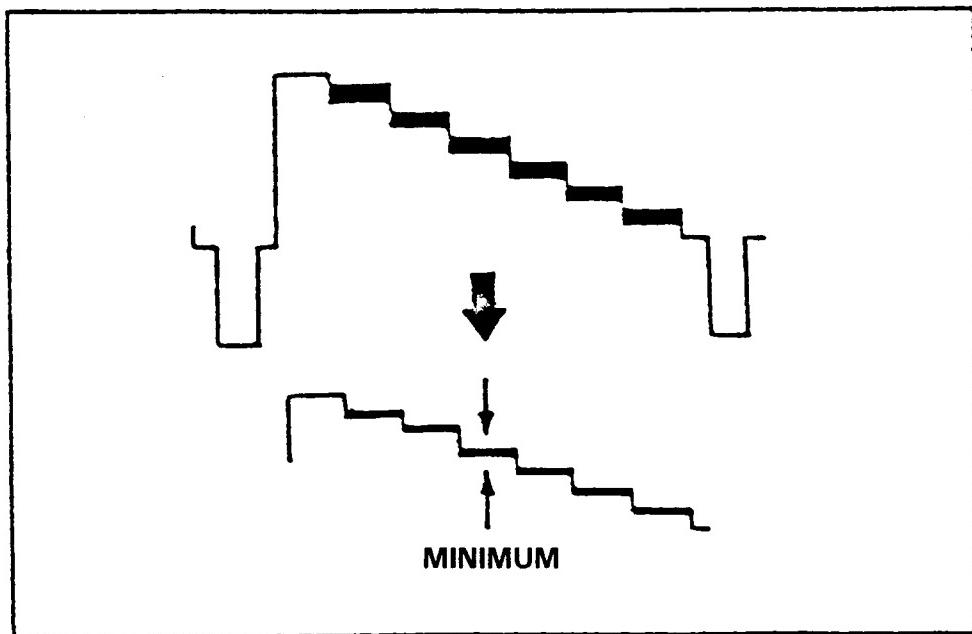
1. Display a picture and set the contrast and bright VRs on the control panel to the center click positions.
2. Adjust the sub contrast VR, R209 and sub bright VR, R22 (R863) for optimum display.

COLOR SYNC

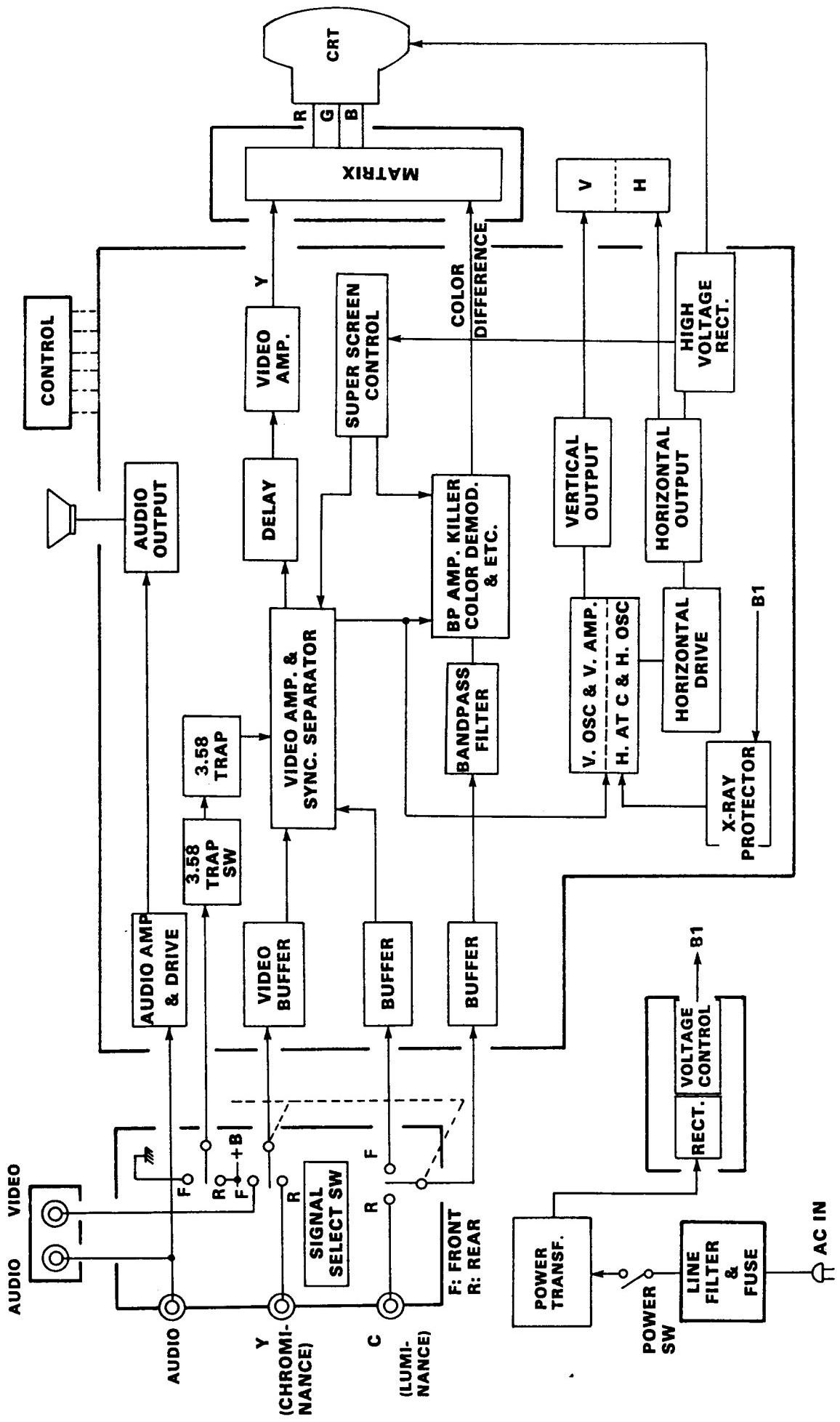
1. Display a color video signal.
2. Connect jumper clips between TP-40 and earth (TP-E) and between TP-51 and IC301 pin 15 (TP-51B).
3. Use a non-metallic screwdriver to turn trimmer capacitor C308.
4. Adjust so that the rolling color stripes become thick and the rolling slows or stops.
5. Remove jumper clips.
6. Confirm that color sync is not disrupted when signals are switched.

3.58 MHz TRAP

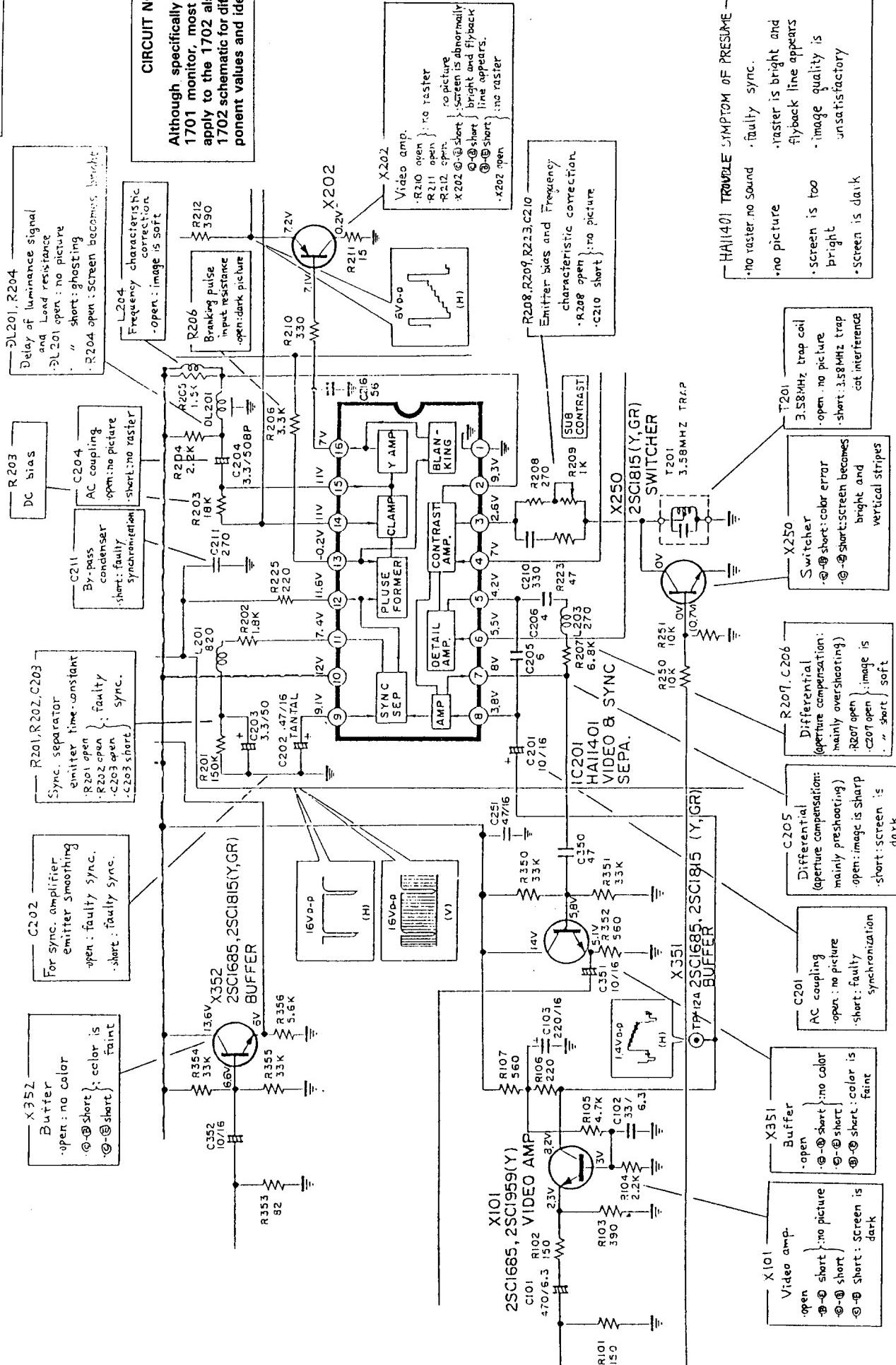
1. Receive a Video Signal into the Video input terminal.
2. Connect oscilloscope probe to DL201 (Delay Line) output side.
3. Turn the core of T201 so that that 3.58MHz signal is minimized.

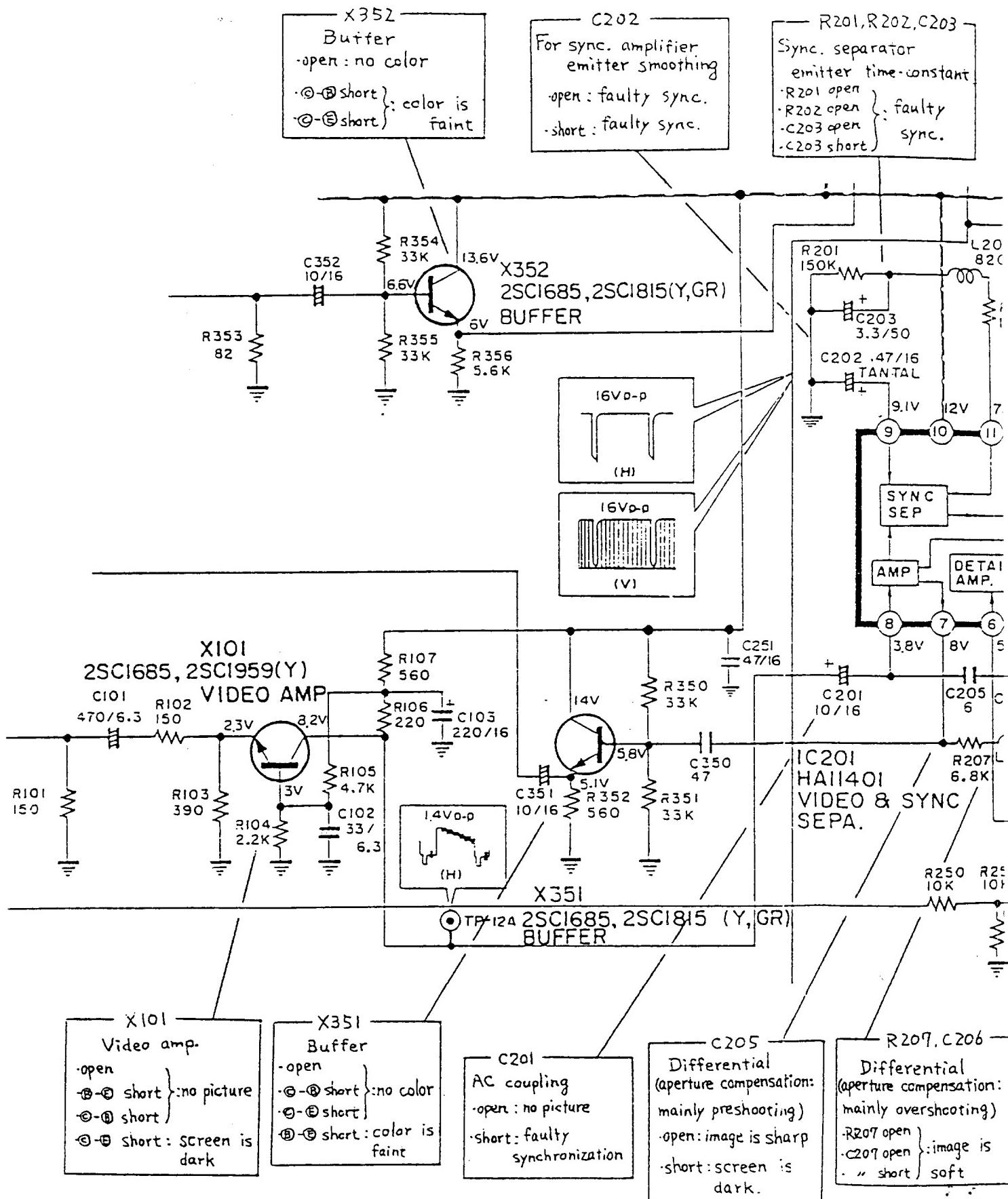


1701/1702 BLOCK DIAGRAM

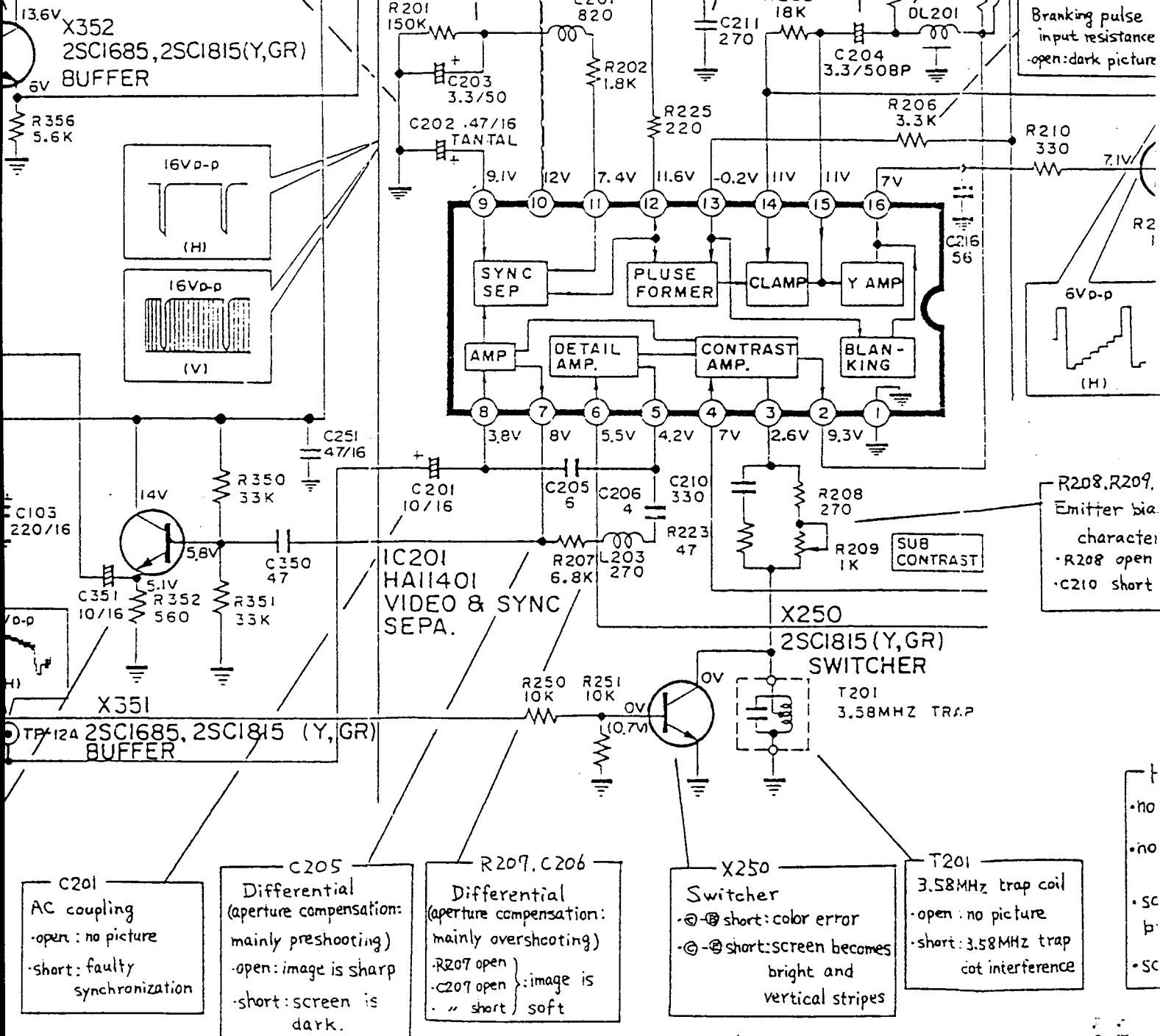


VIDEO CIRCUIT

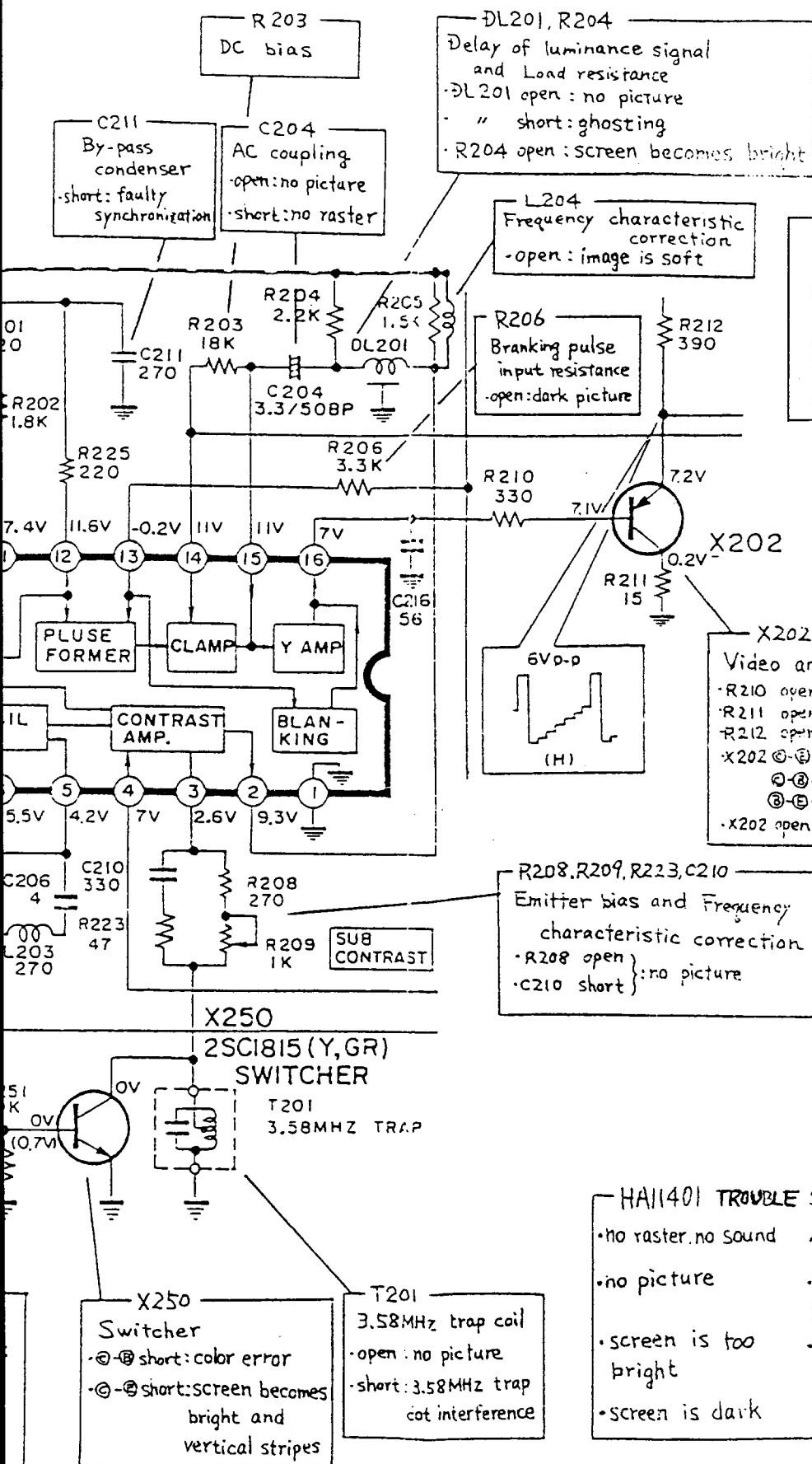




is
aint



VIDEO CIRCUIT

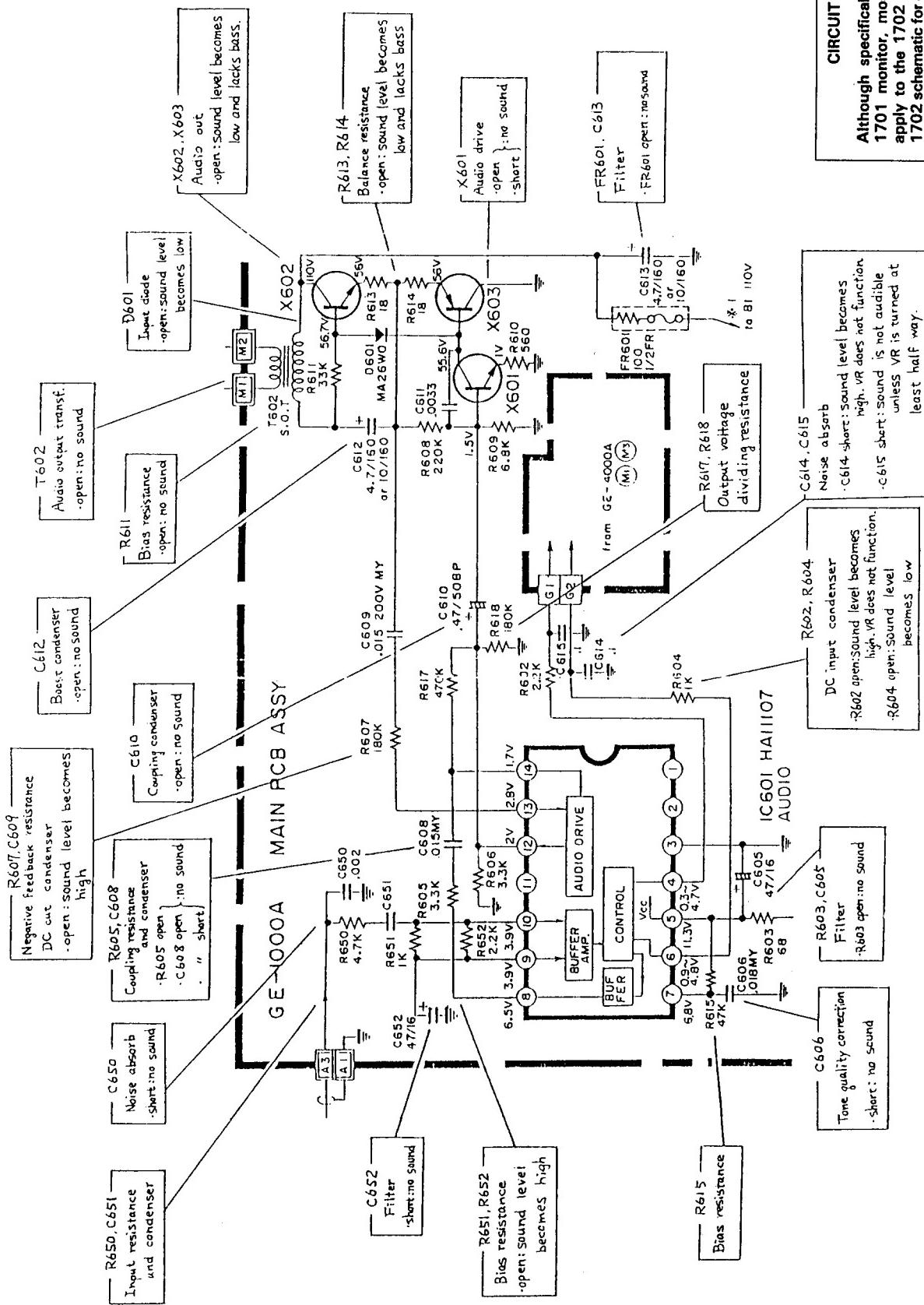


CIRCUIT NOTES

Although specifically written on the 1701 monitor, most circuit theories apply to the 1702 also. Refer to the 1702 schematic for differences in component values and identification.

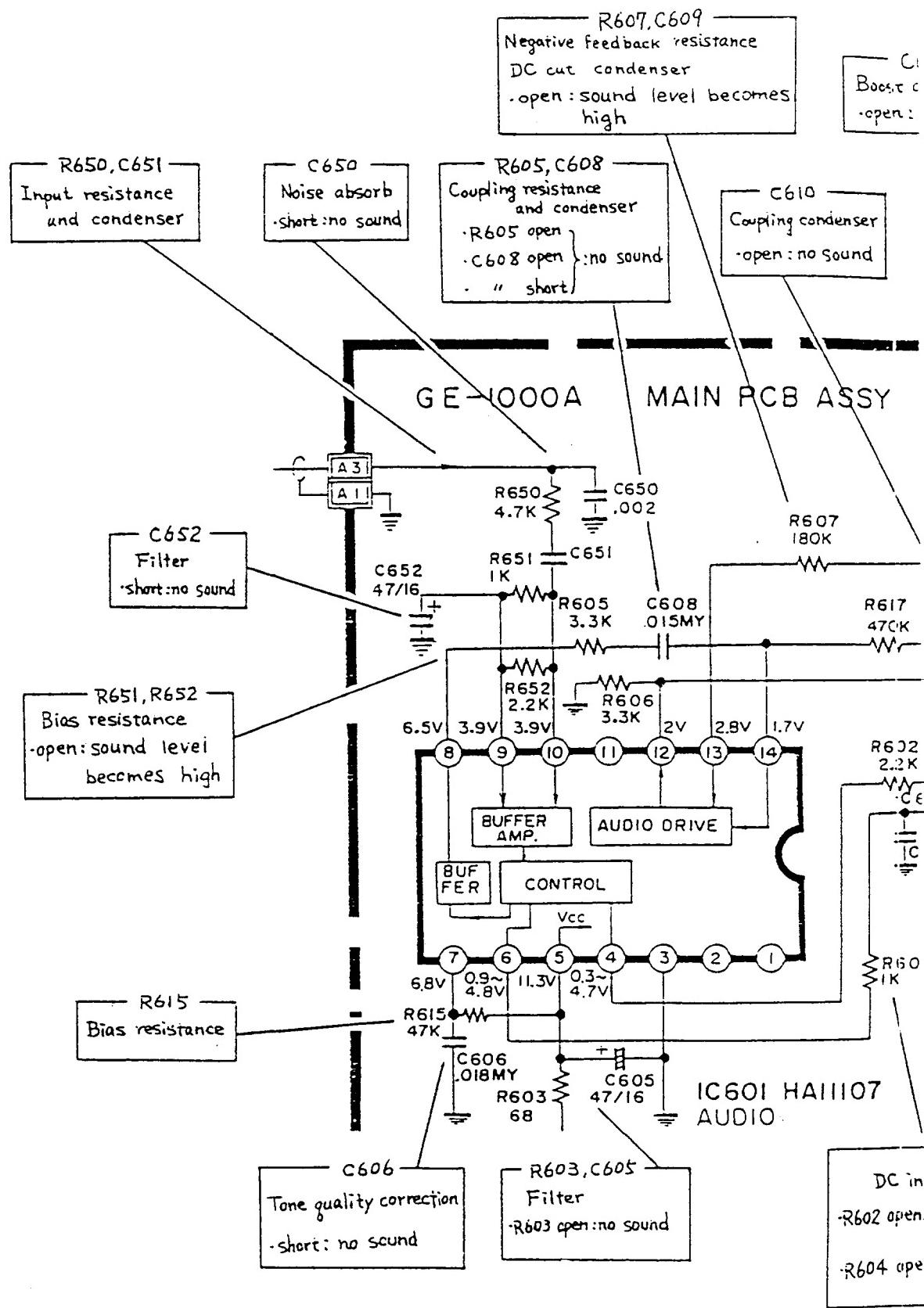
- HAI401 TROUBLE SYMPTOM OF PRELIMINARY**
- no raster, no sound • faulty sync.
 - no picture • raster is bright and flyback line appears
 - screen is too bright • image quality is unsatisfactory
 - screen is dark

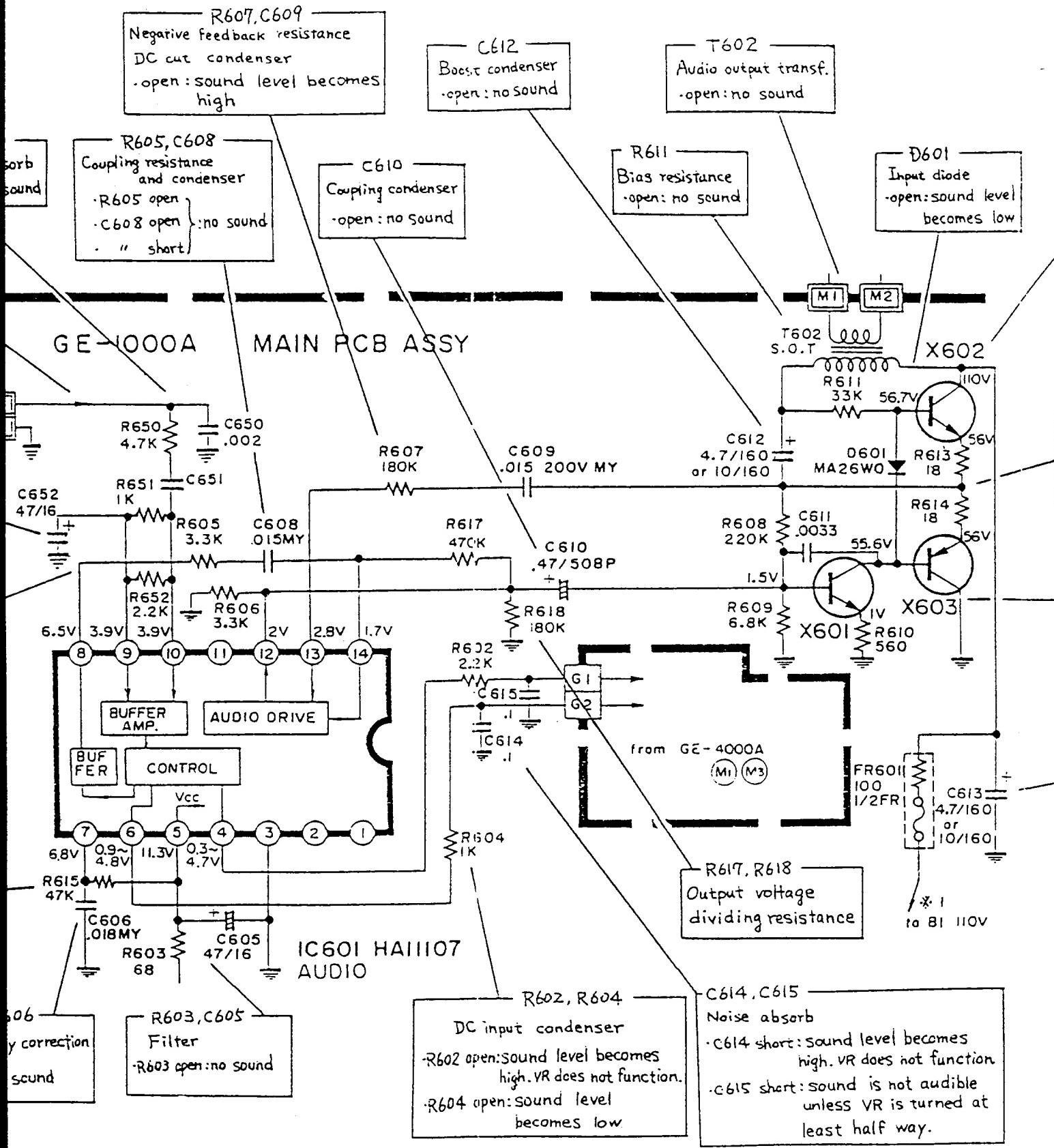
AUDIO CIRCUIT



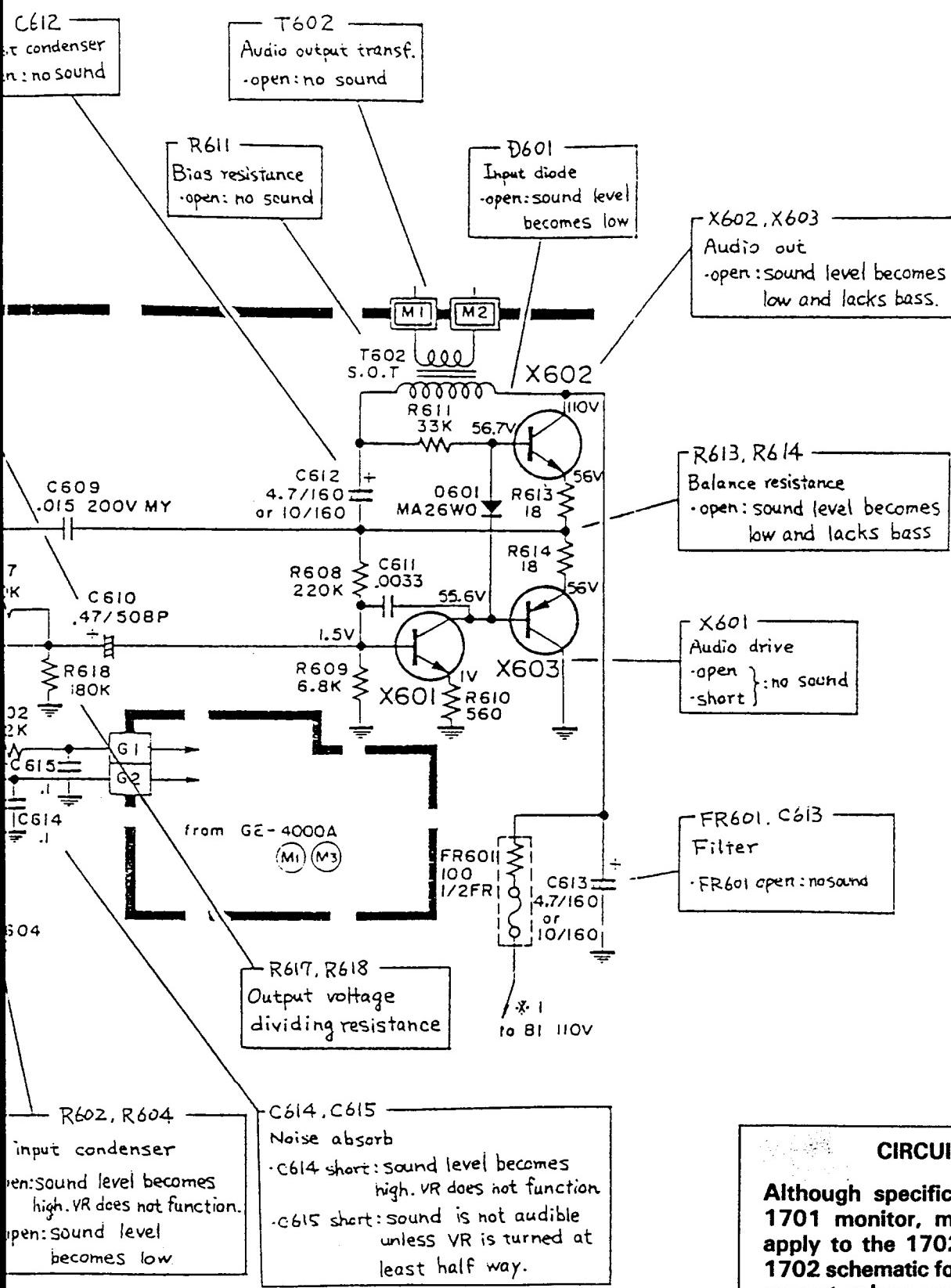
CIRCUIT NOTES

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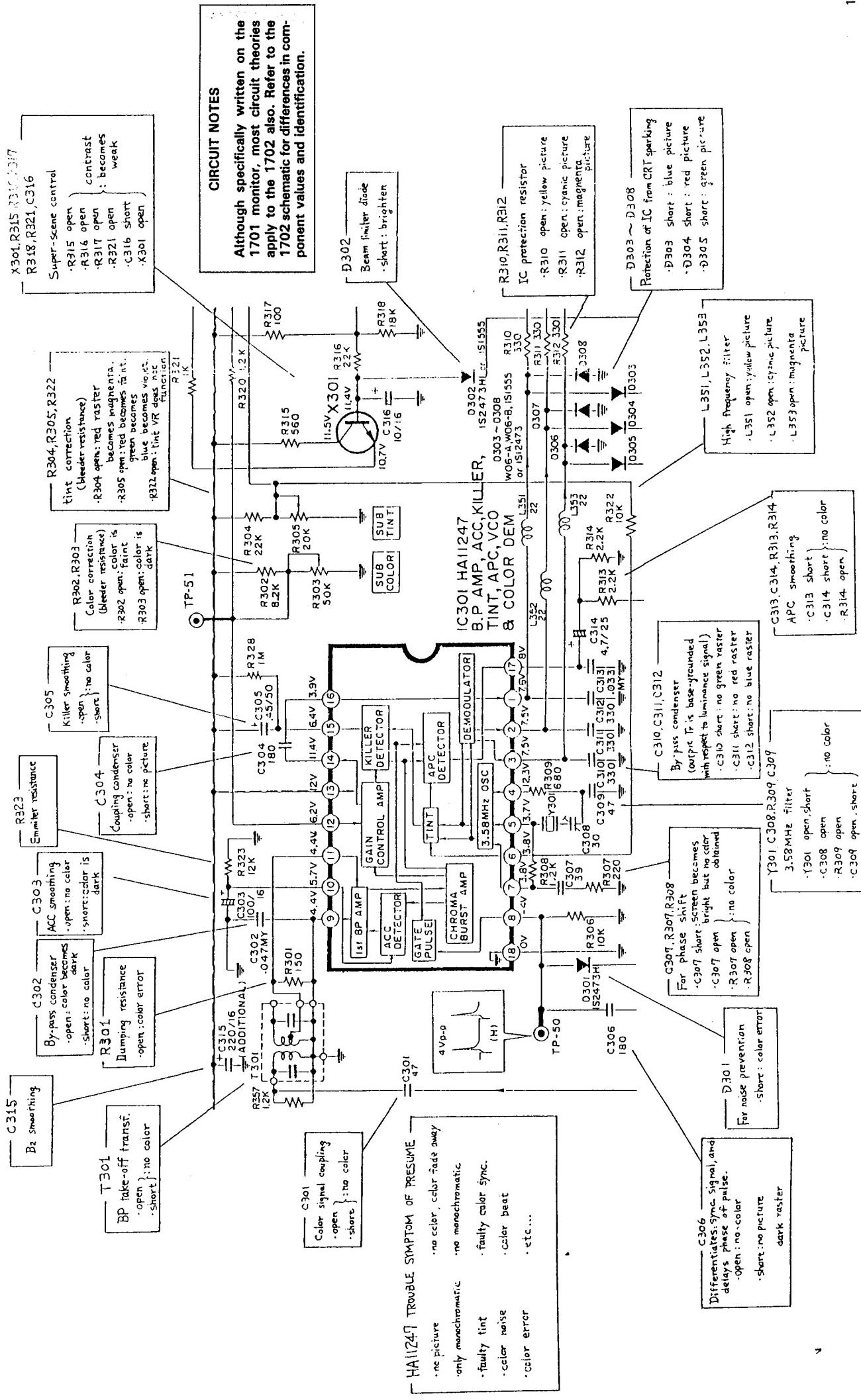
AUDIO CIRCUIT

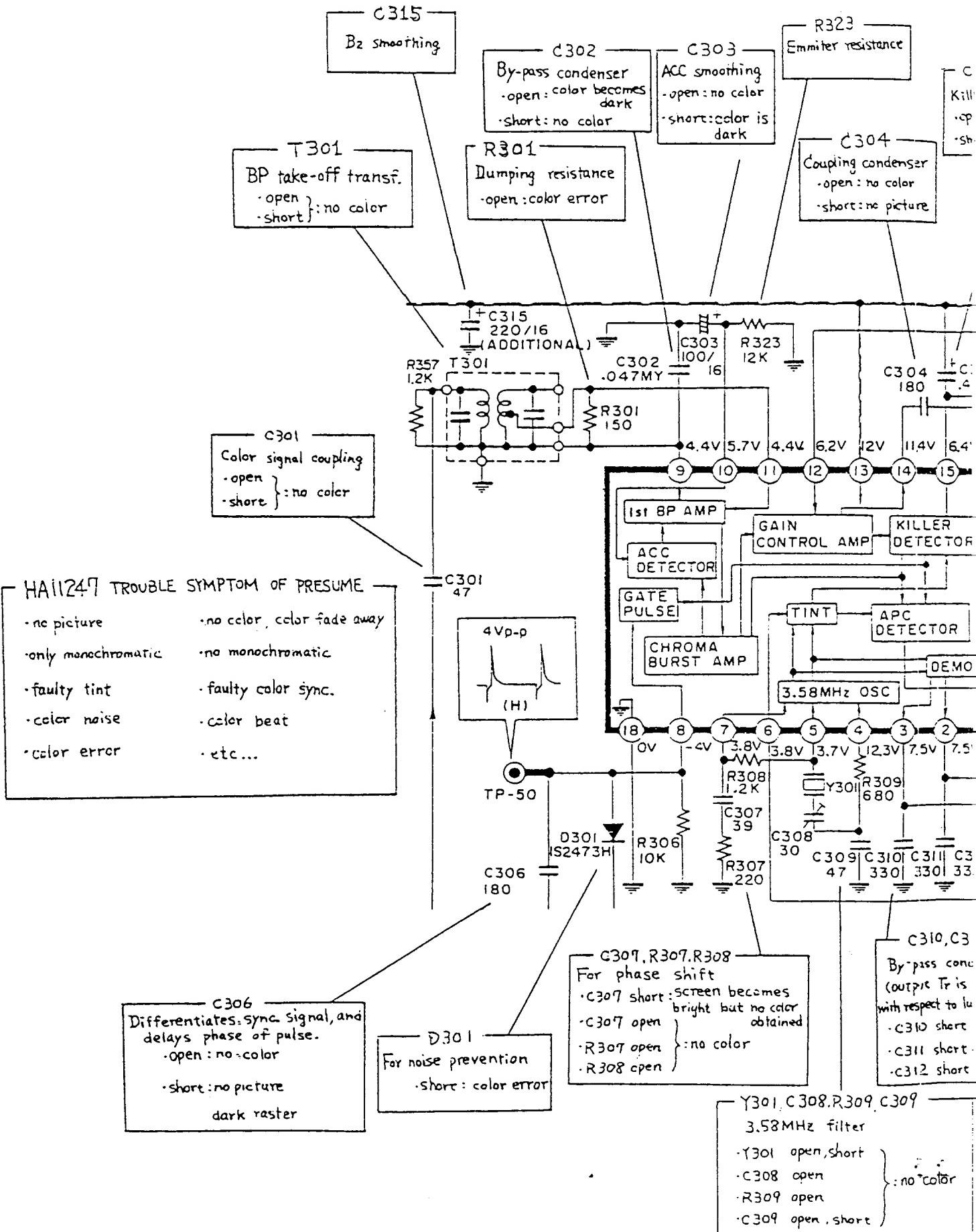


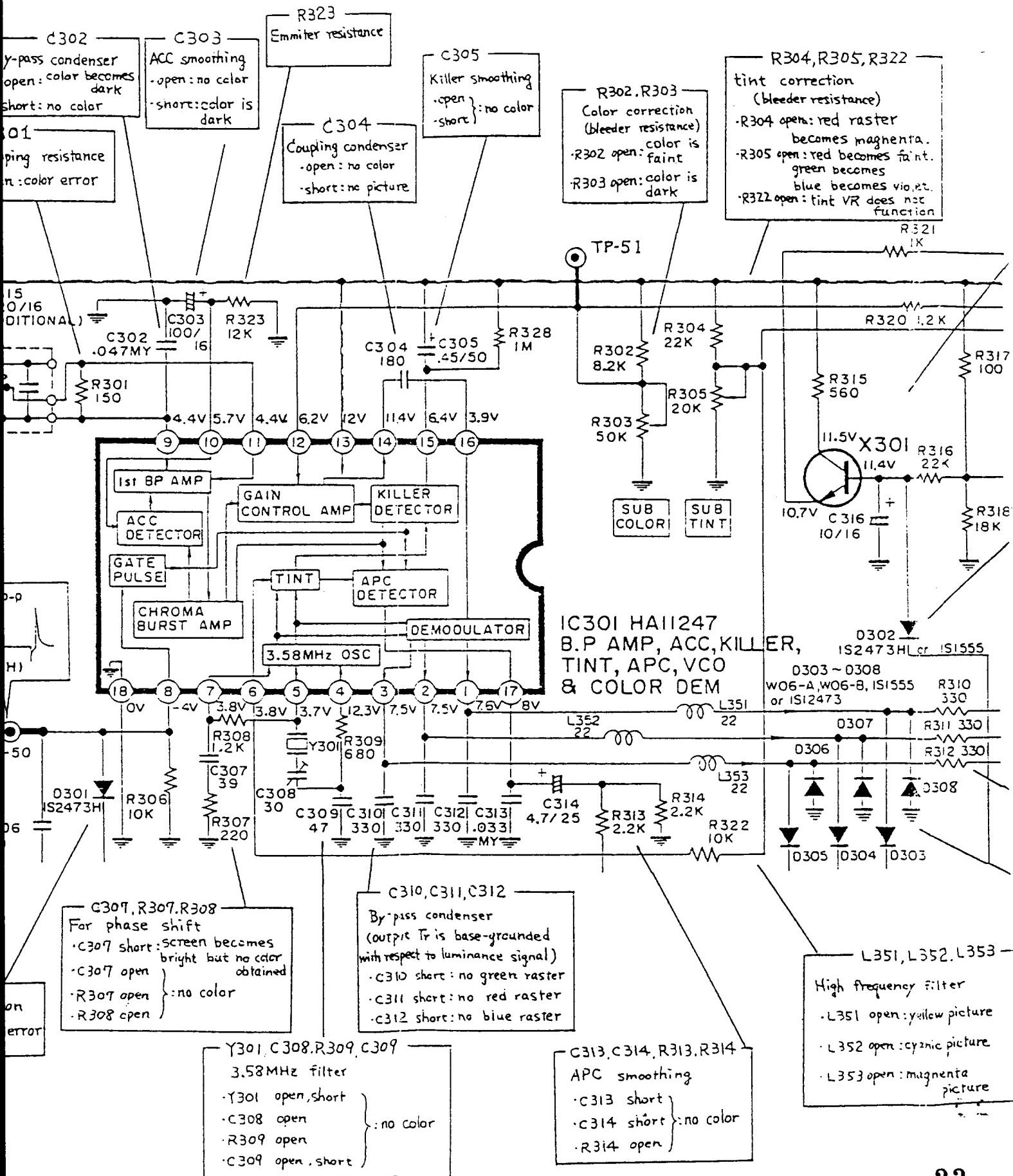
CIRCUIT NOTES

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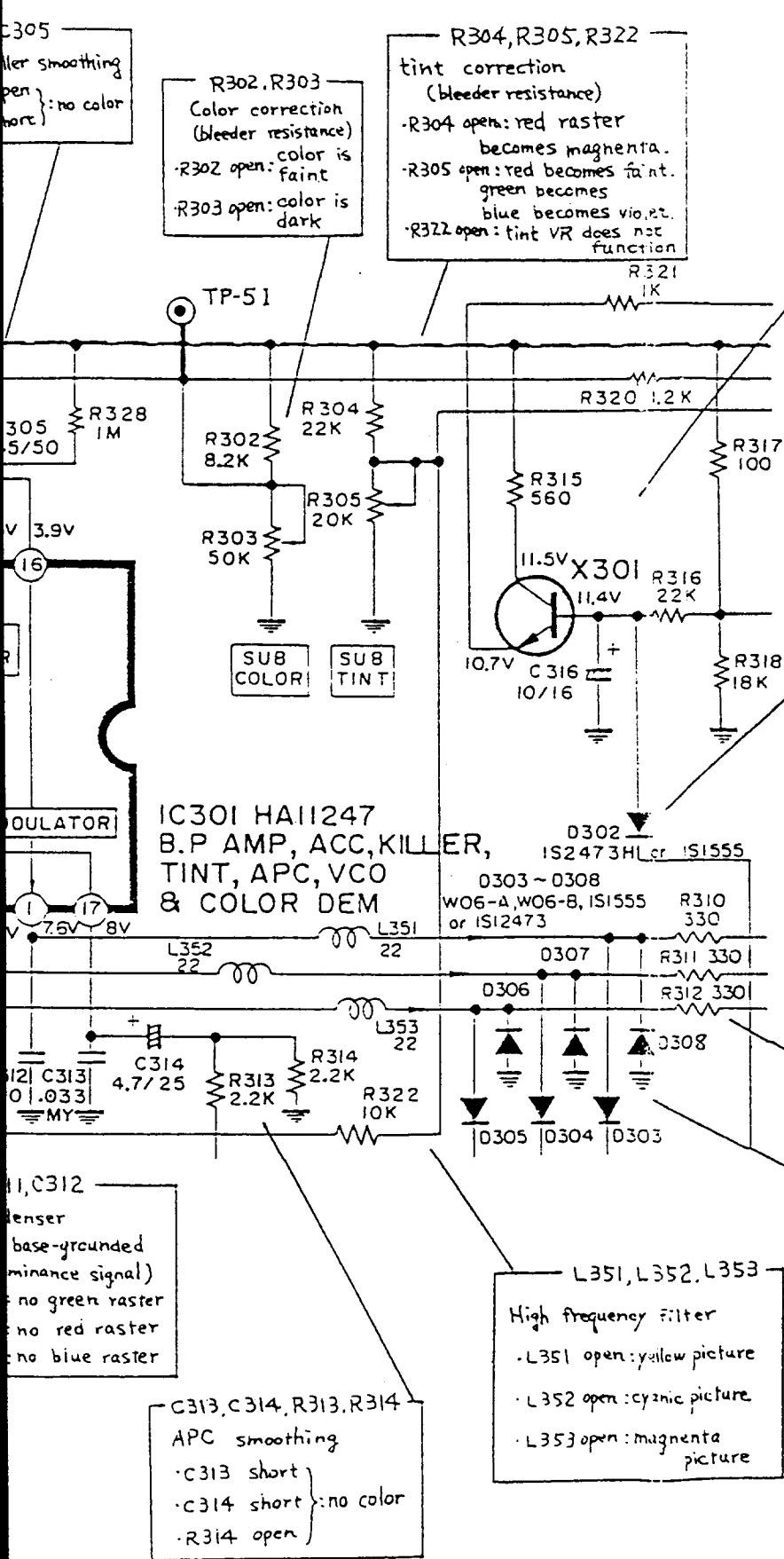
COLOR DEM. CIRCUIT







COLOR DEM. CIRCUIT



X301, R315, R316, R317

R318, R321, C316

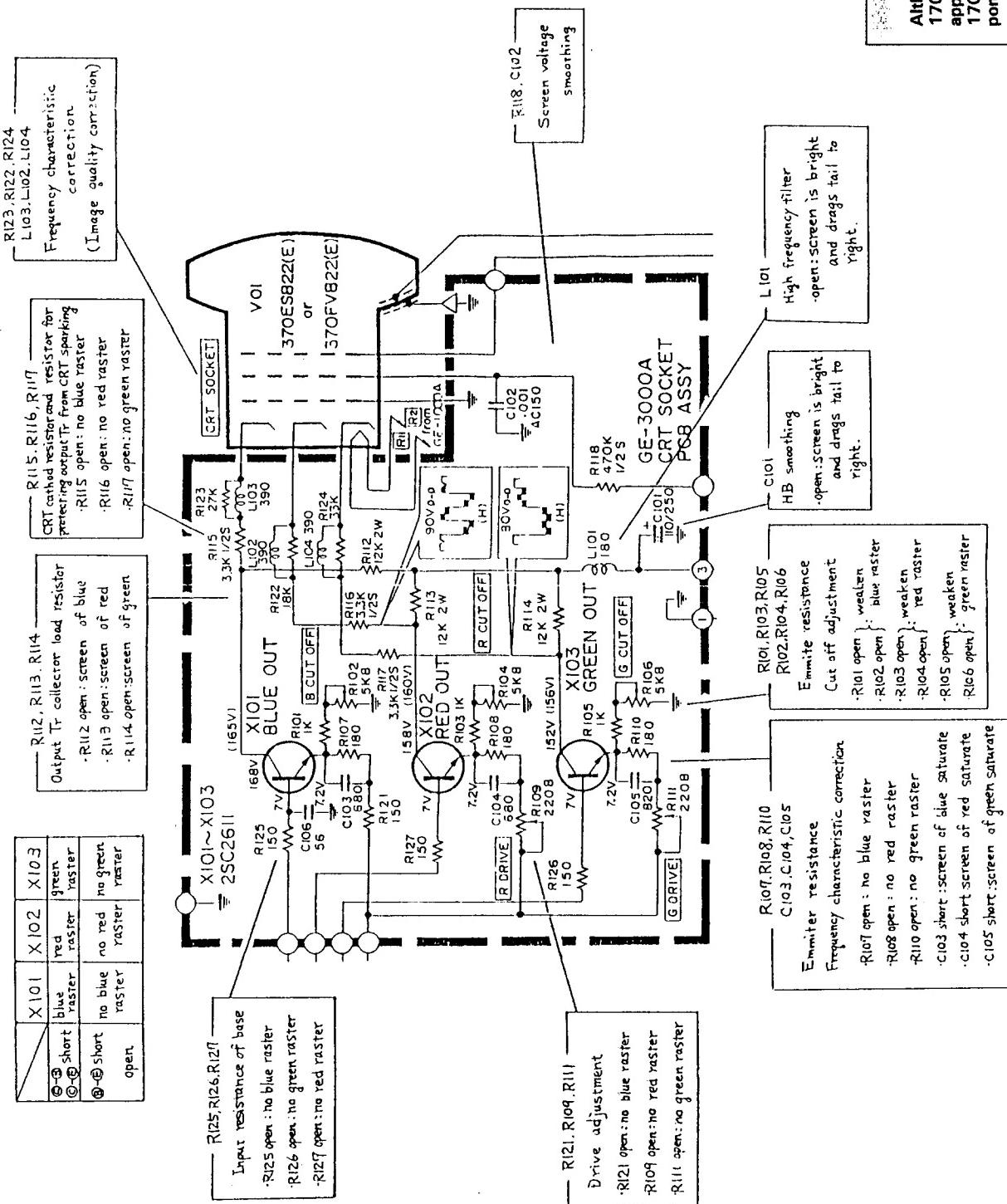
Super-Scene control

- R315 open
- R316 open
- R317 open
- R321 open
- C316 short } contrast becomes weak
- X301 open }

CIRCUIT NOTES

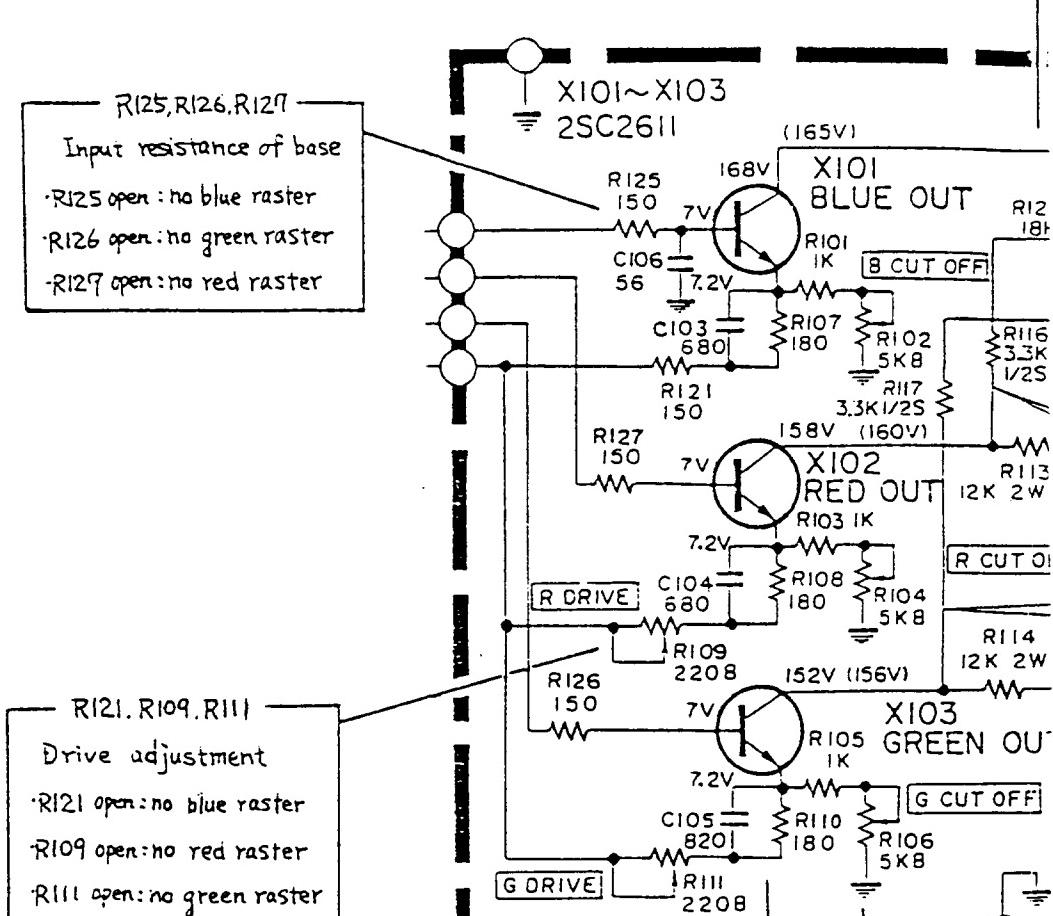
Although specifically written on the 1701 monitor, most circuit theories apply to the 1702 also. Refer to the 1702 schematic for differences in component values and identification.

CHROMA OUTPUT CIRCUIT



| | X101 | X102 | X103 |
|-------------|----------------|---------------|-----------------|
| (①-②) short | blue raster | red raster | green raster |
| (③-④) short | no blue raster | no red raster | no green raster |
| open | | | |

R112, R113, R114
Output Tr collector load-res
 -R112 open: screen of bl
 -R113 open: screen of rec
 -R114 open: screen of gre



R107, R108, R110
C103, C104, C105
Emmitter resistance
Frequency characteristic correction
 -R107 open: no blue raster
 -R108 open: no red raster
 -R110 open: no green raster
 -C103 short: screen of blue saturate
 -C104 short: screen of red saturate
 -C105 short: screen of green saturate

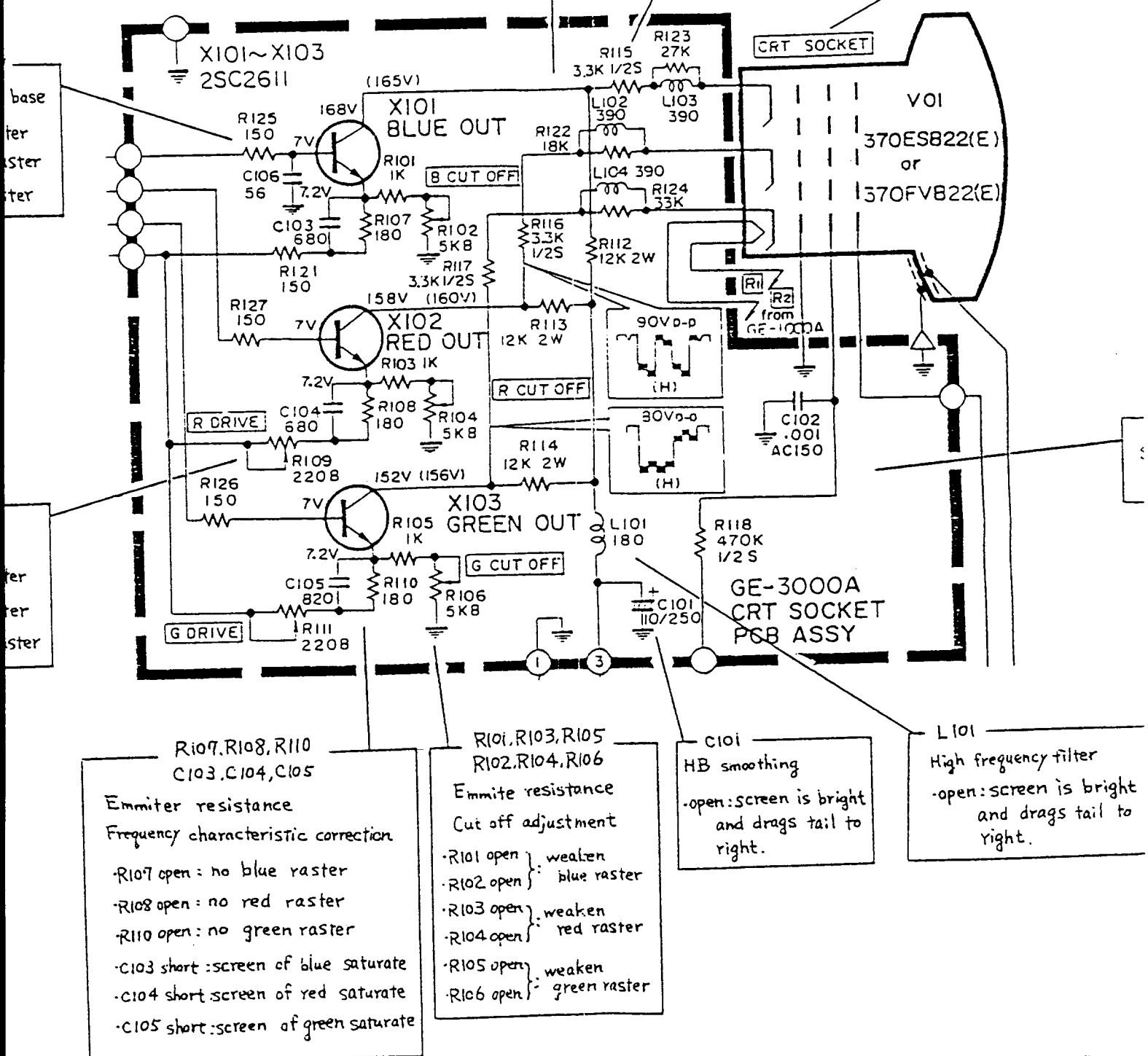
R101, R103, R102, R104, R
Emmiter resist
Cut off adjust:
 -R101 open } : wea
 -R102 open } : blu
 -R103 open } : weal
 -R104 open } : rec
 -R105 open } : weal
 -R106 open } : gre

| | X101 | X102 | X103 |
|------|----------------|---------------|-----------------|
| base | blue raster | red raster | green raster |
| ter | no blue raster | no red raster | no green raster |

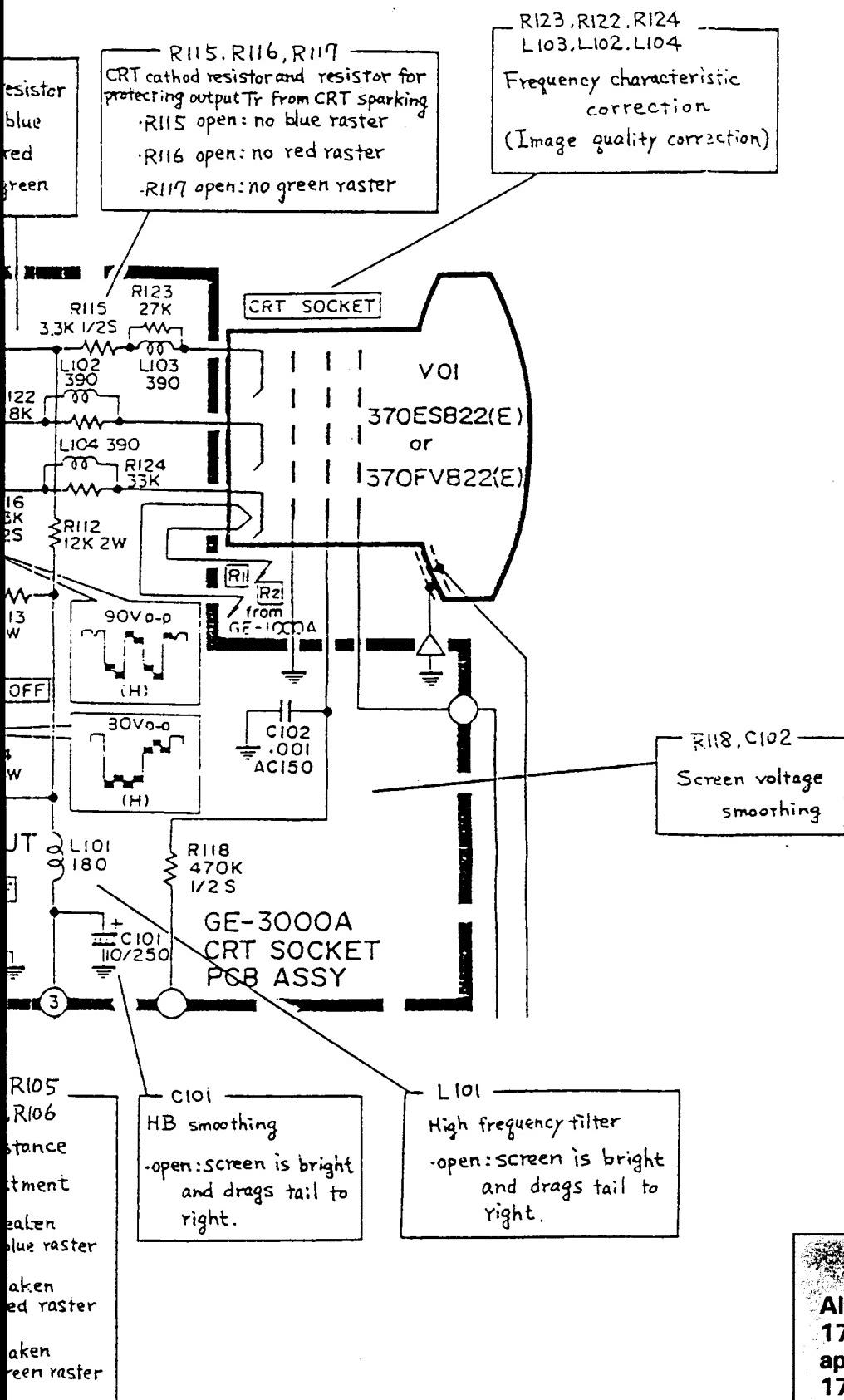
R112, R113, R114
Output Tr collector load resistor
-R112 open: screen of blue
-R113 open: screen of red
-R114 open: screen of green

R115, R116, R117
CRT cathod resistor and resistor for protecting output Tr from CRT sparking
-R115 open: no blue raster
-R116 open: no red raster
-R117 open: no green raster

R123, R122, R124
L103, L102, L104
Frequency character correction
(Image quality cor)

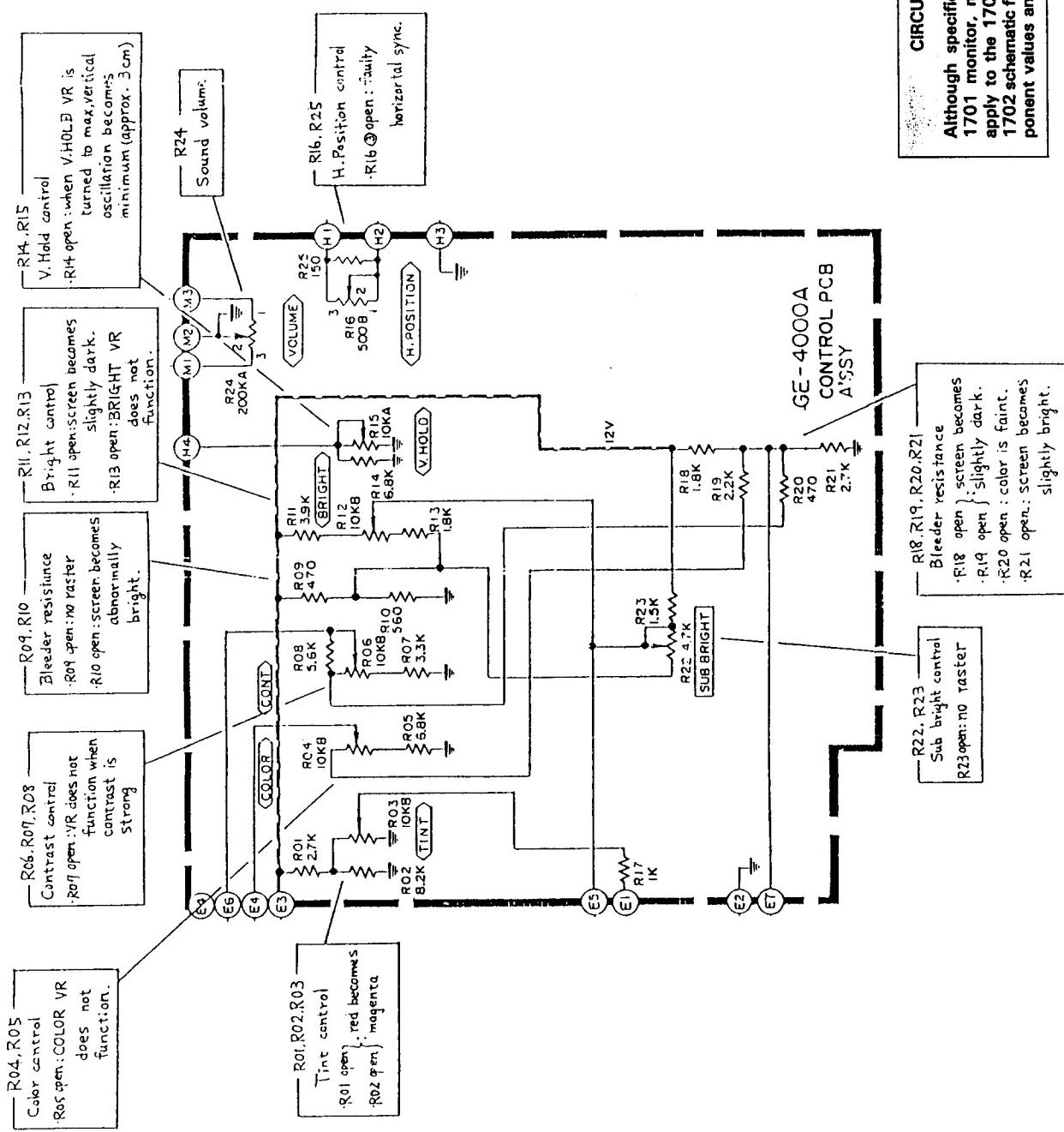


CHROMA OUTPUT CIRCUIT



CIRCUIT NOTES
Although specifically written on the 1701 monitor, most circuit theories apply to the 1702 also. Refer to the 1702 schematic for differences in component values and identification.

CONTROL

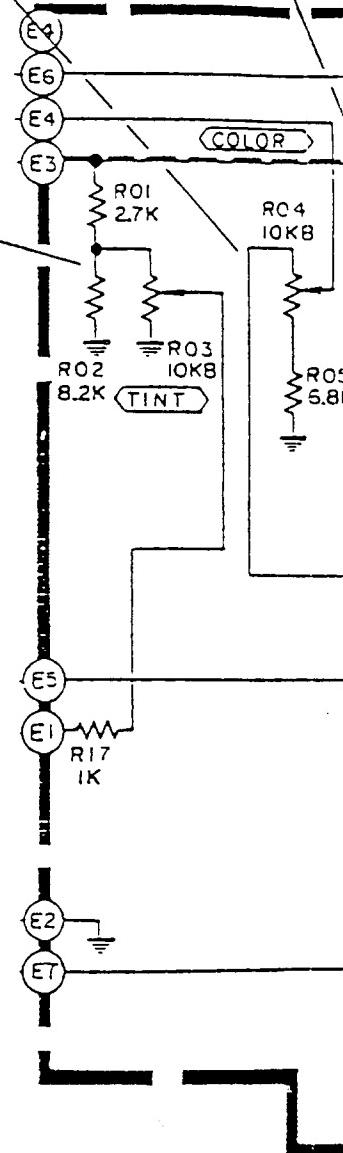


R04, R05
Color control
• R05 open: COLOR VR
does not
function.

R06, R07, R08
Contrast control
• R07 open: VR does not
function when
contrast is
strong

R01, R02, R03
Tint control
• R01 open, red becomes
• R02 open, magenta

R22,
Sub br
R23 open: r



R04, R05
Color control
•R05 open: COLOR VR
does not function.

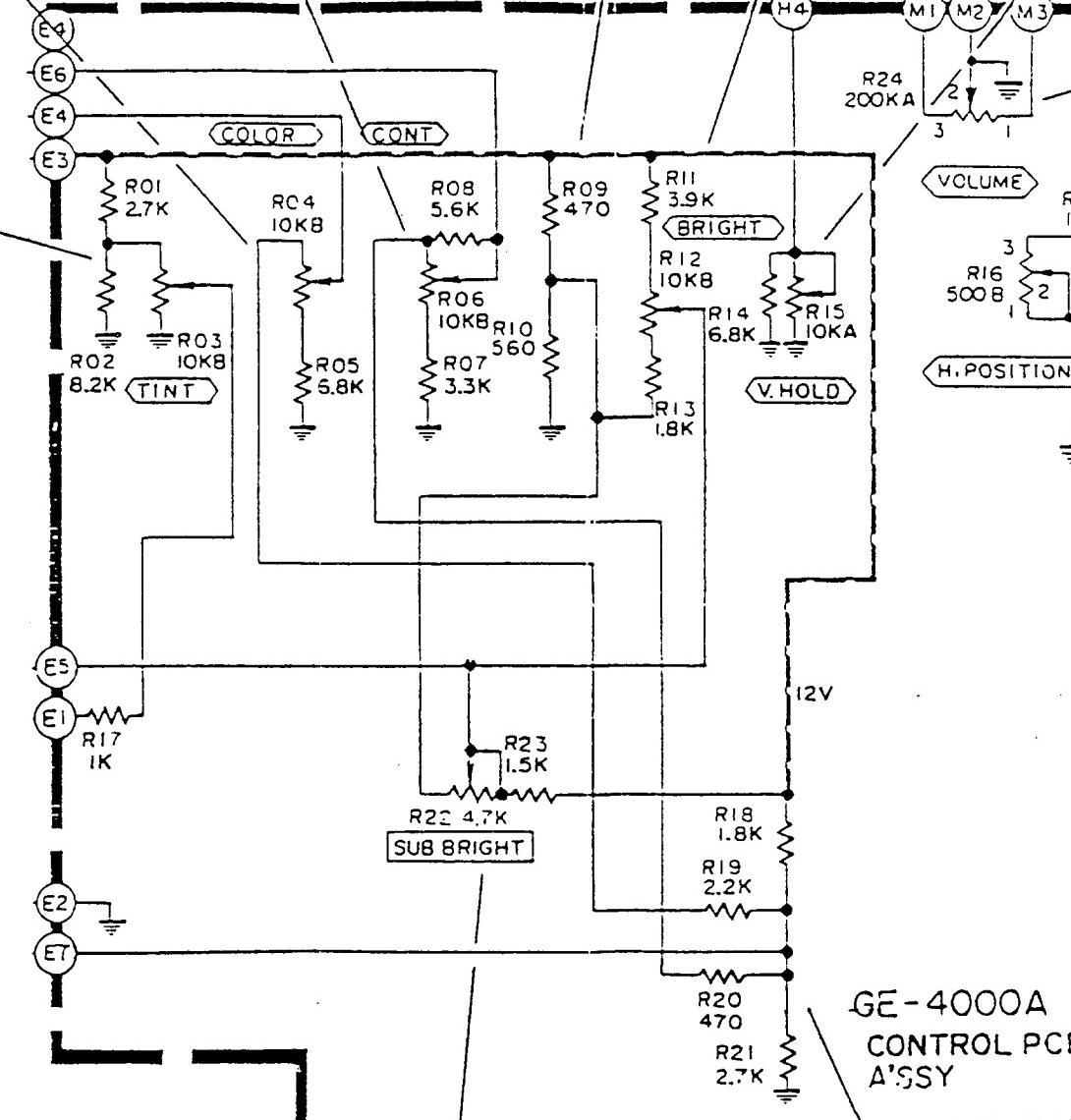
R06, R07, R08
Contrast control
•R07 open: VR does not
function when
contrast is
strong

R09, R10
Bleeder resistance
•R09 open: no raster
•R10 open: screen becomes
abnormally
bright.

R11, R12, R13
Bright control
•R11 open: screen becomes
slightly dark.
•R13 open: BRIGHT VR
does not
function.

R01, R02, R03
Tint control
•R01 open } red becomes
•R02 open } magenta

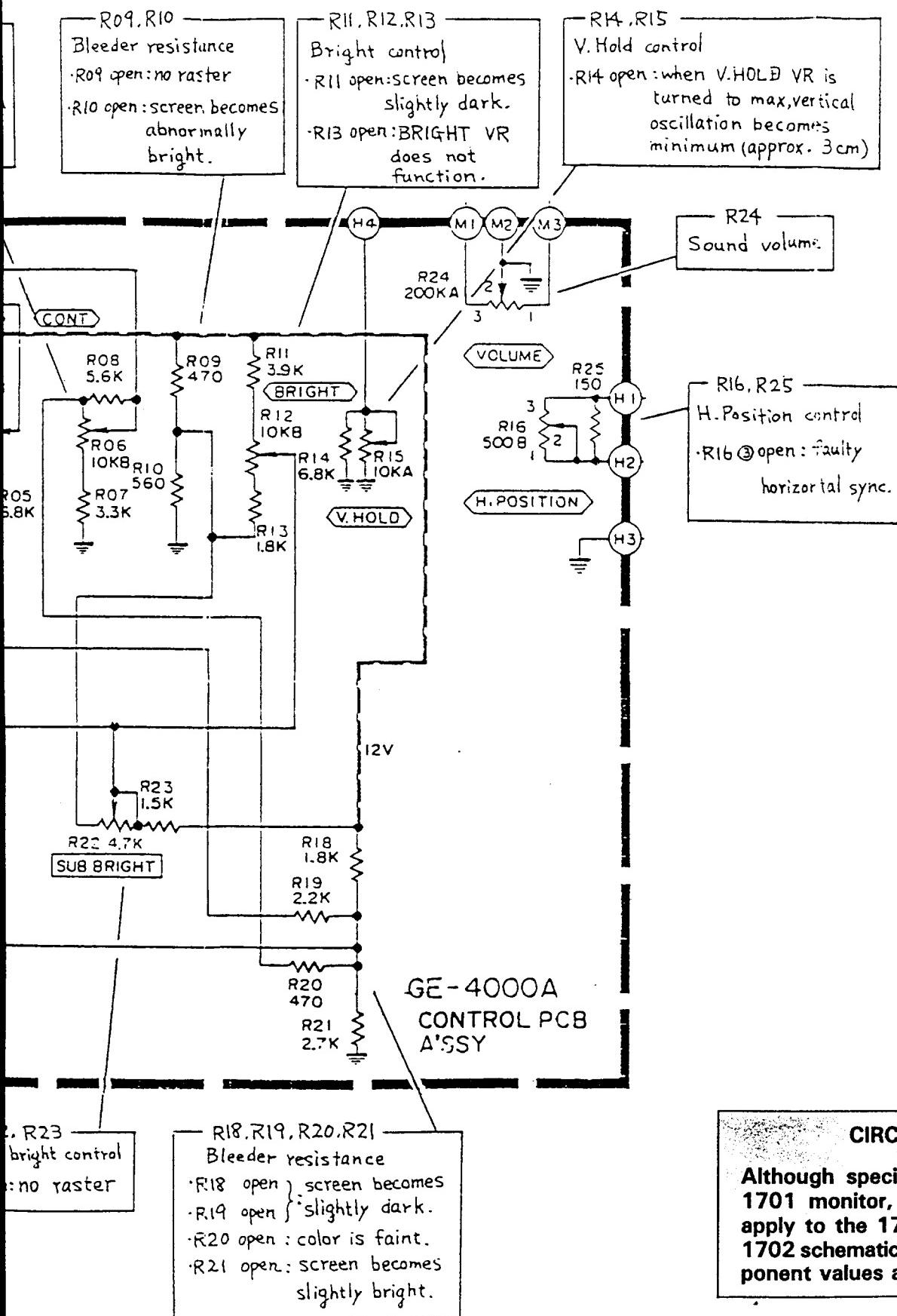
(COLOR)



R22, R23
Sub bright control
R23 open: no raster

R18, R19, R20, R21
Bleeder resistance
•R18 open } screen becomes
•R19 open } slightly dark.
•R20 open : color is faint.
•R21 open: screen becomes
slightly bright.

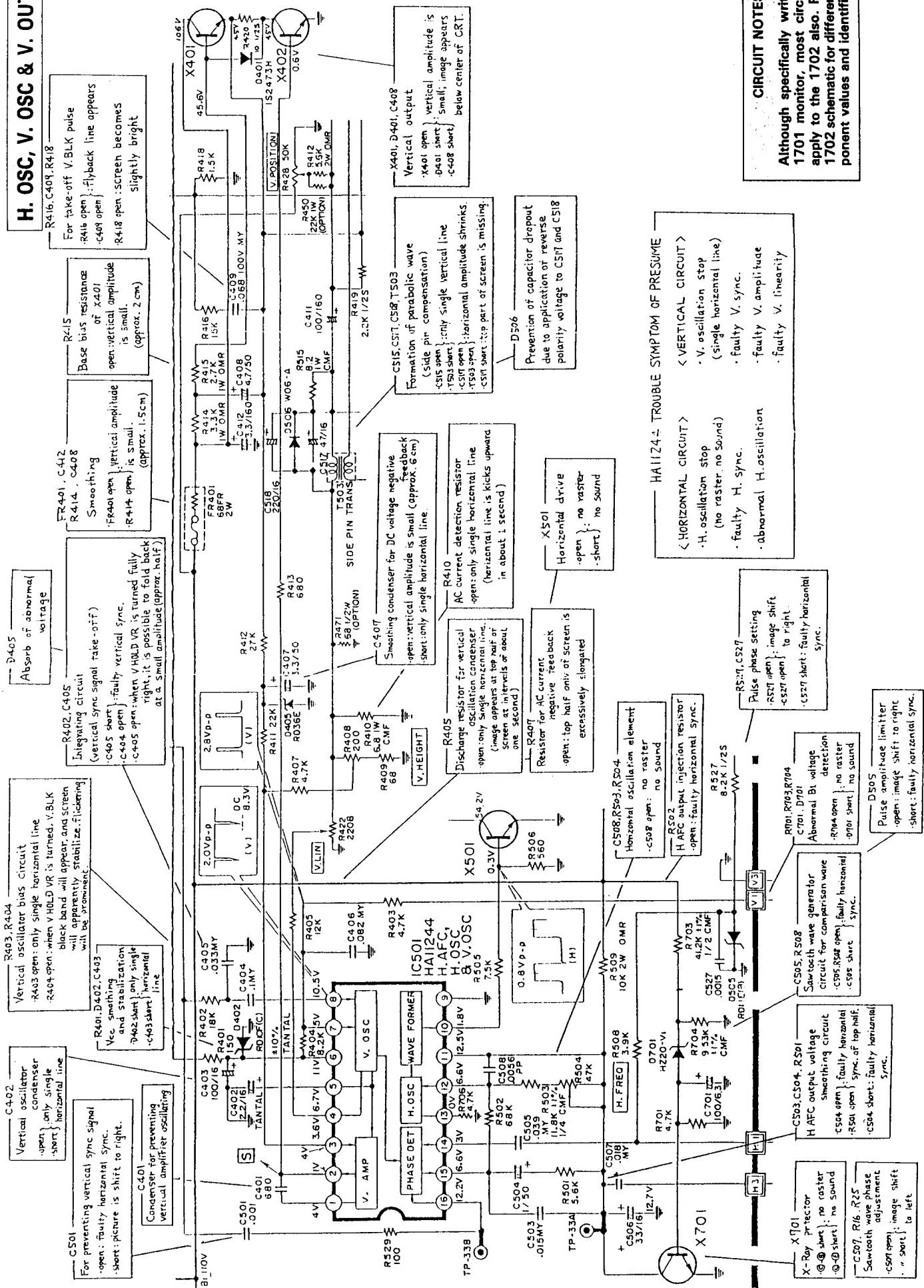
CONTROL

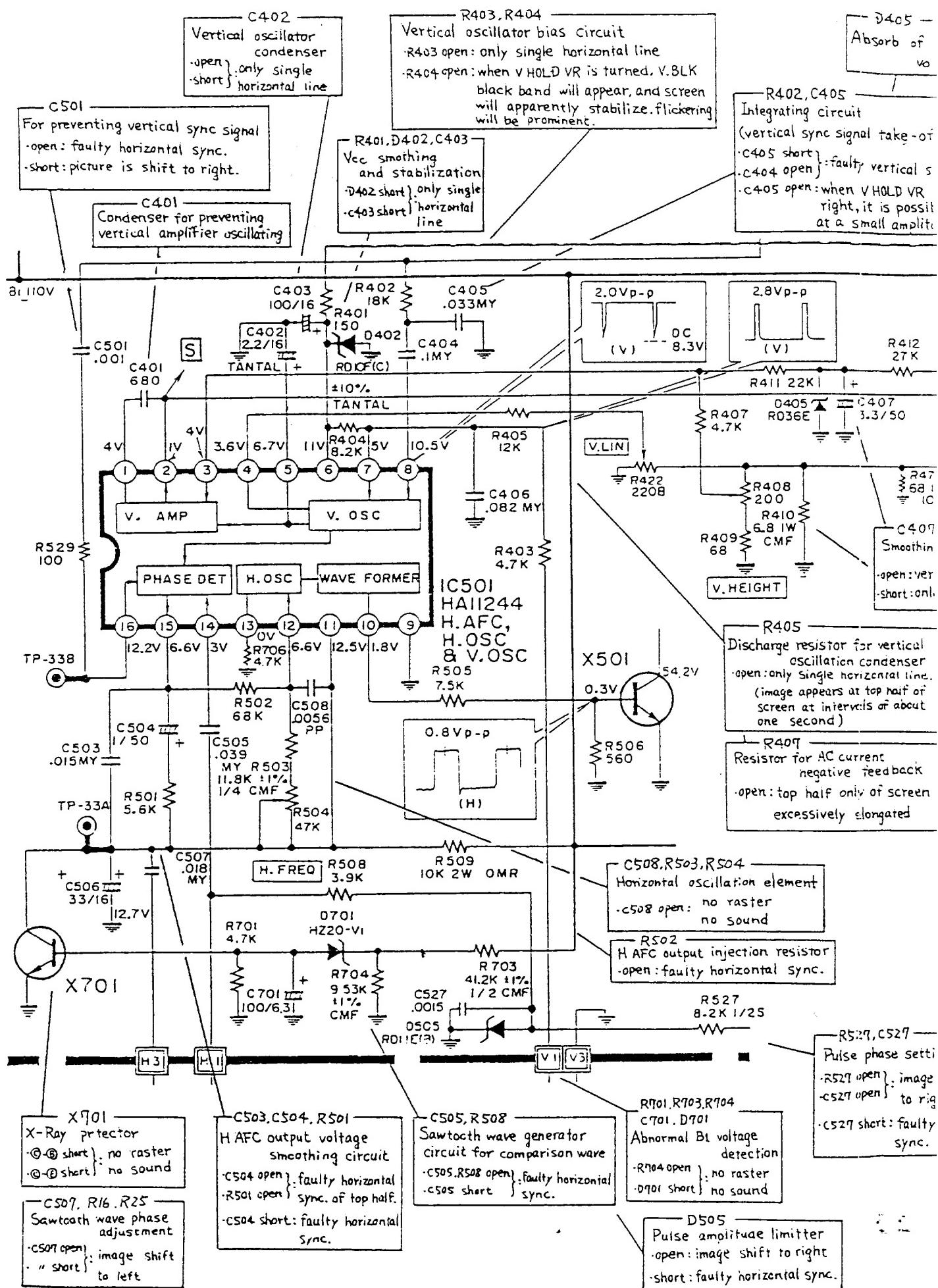


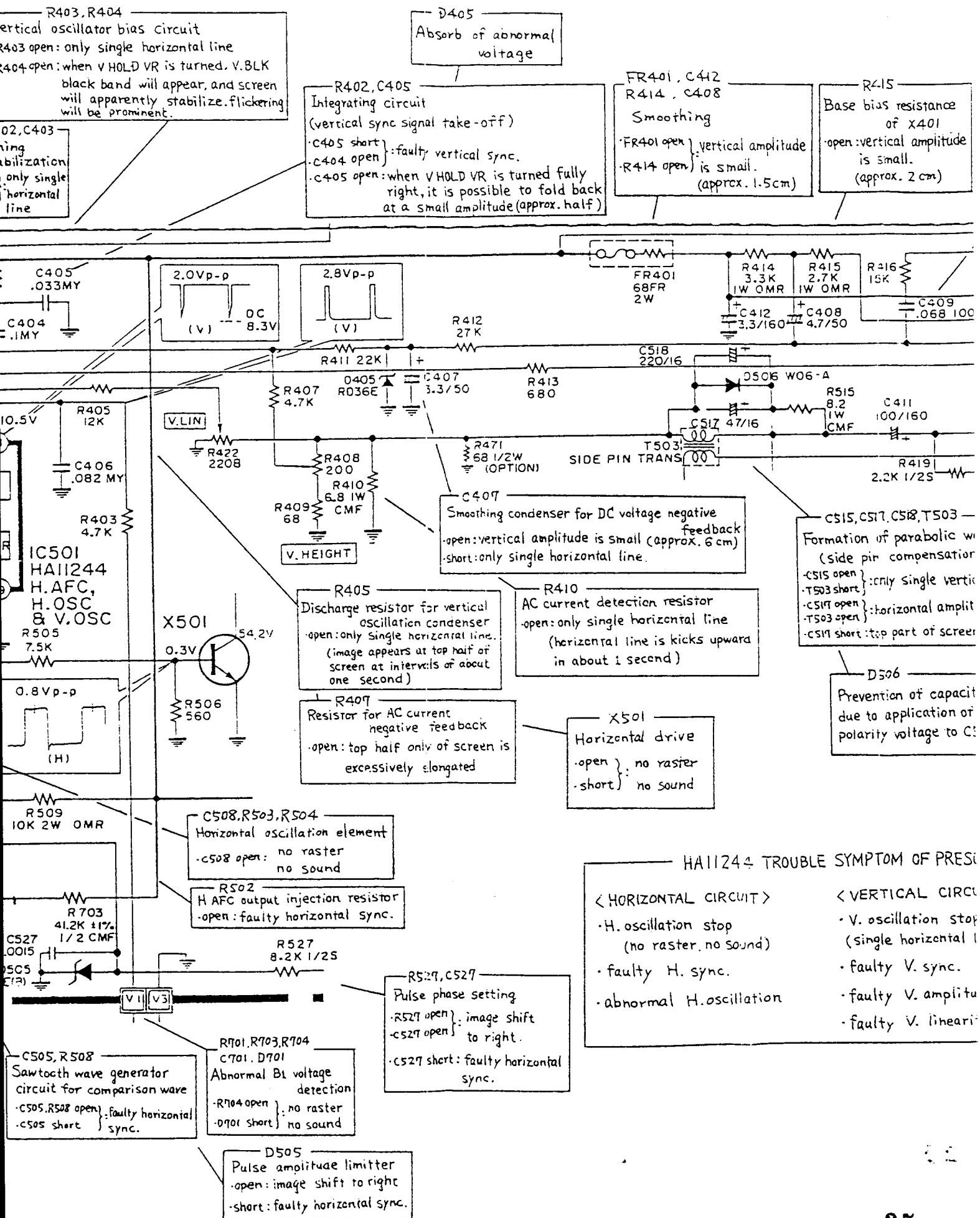
CIRCUIT NOTES

Although specifically written on the 1701 monitor, most circuit theories apply to the 1702 also. Refer to the 1702 schematic for differences in component values and identification.

H. OSC, V. OSC & V. OUT CIRCUIT







H. OSC, V. OSC & V. OUT CIRCUIT

f abnormal
voltage

off)

Sync.

is turned fully
able to fold back
tude (approx. half)

FR401, C412

R414, C408

Smoothing

-FR401 open } vertical amplitude
-R414 open } is small.
(approx. 1.5cm)

R415

Base bias resistance
of X401
open: vertical amplitude
is small.
(approx. 2 cm)

R416, C409, R418

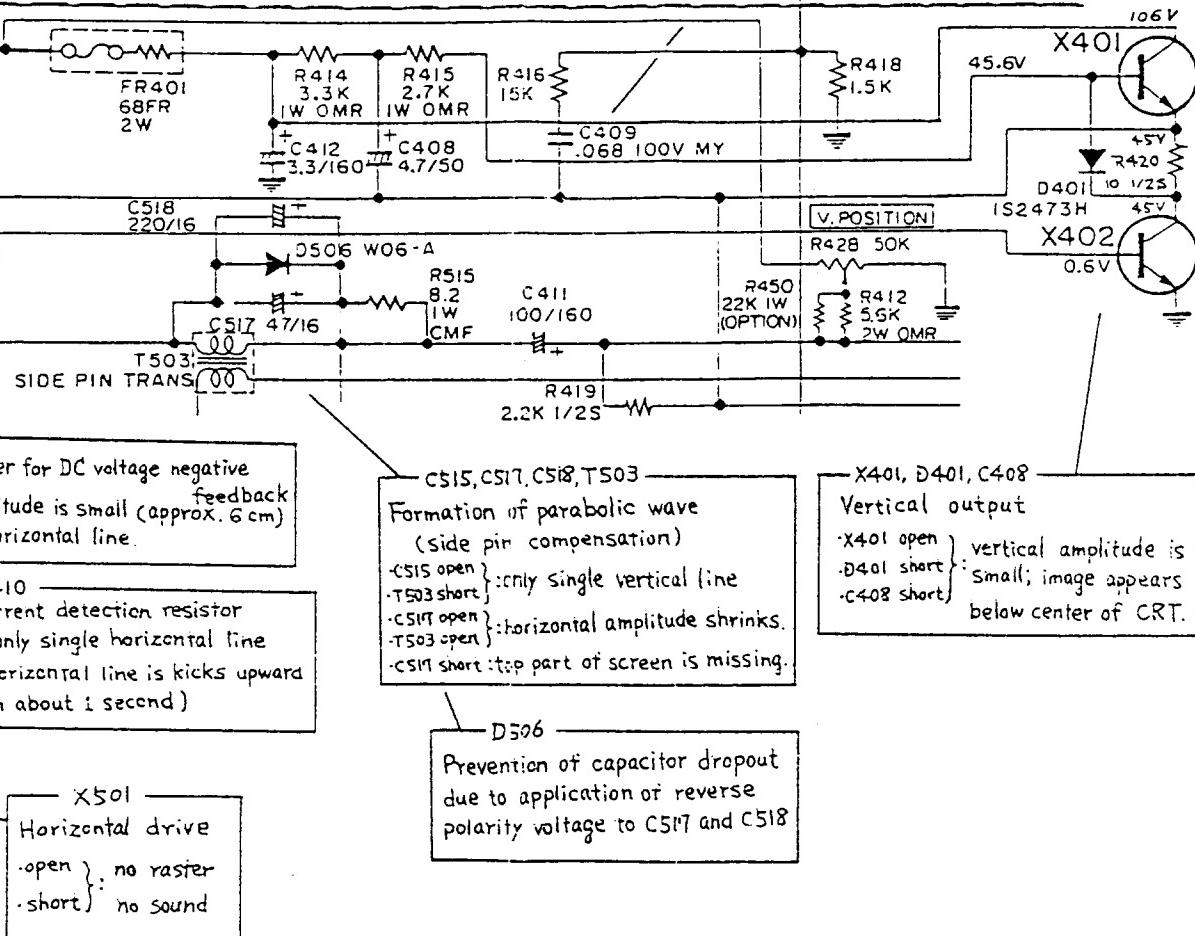
For take-off V.BLK pulse
-R416 open } flyback line appears.
-C409 open }
-R418 open : screen becomes
slightly bright

VV
R413
680

+71
1/2W
(OPTION)

n is

ing
e shift
ight.
y horizontal



HAI124 TROUBLE SYMPTOM OF PRESUME

< HORIZONTAL CIRCUIT >

- H. oscillation stop (no raster, no sound)
- faulty H. sync.
- abnormal H. oscillation

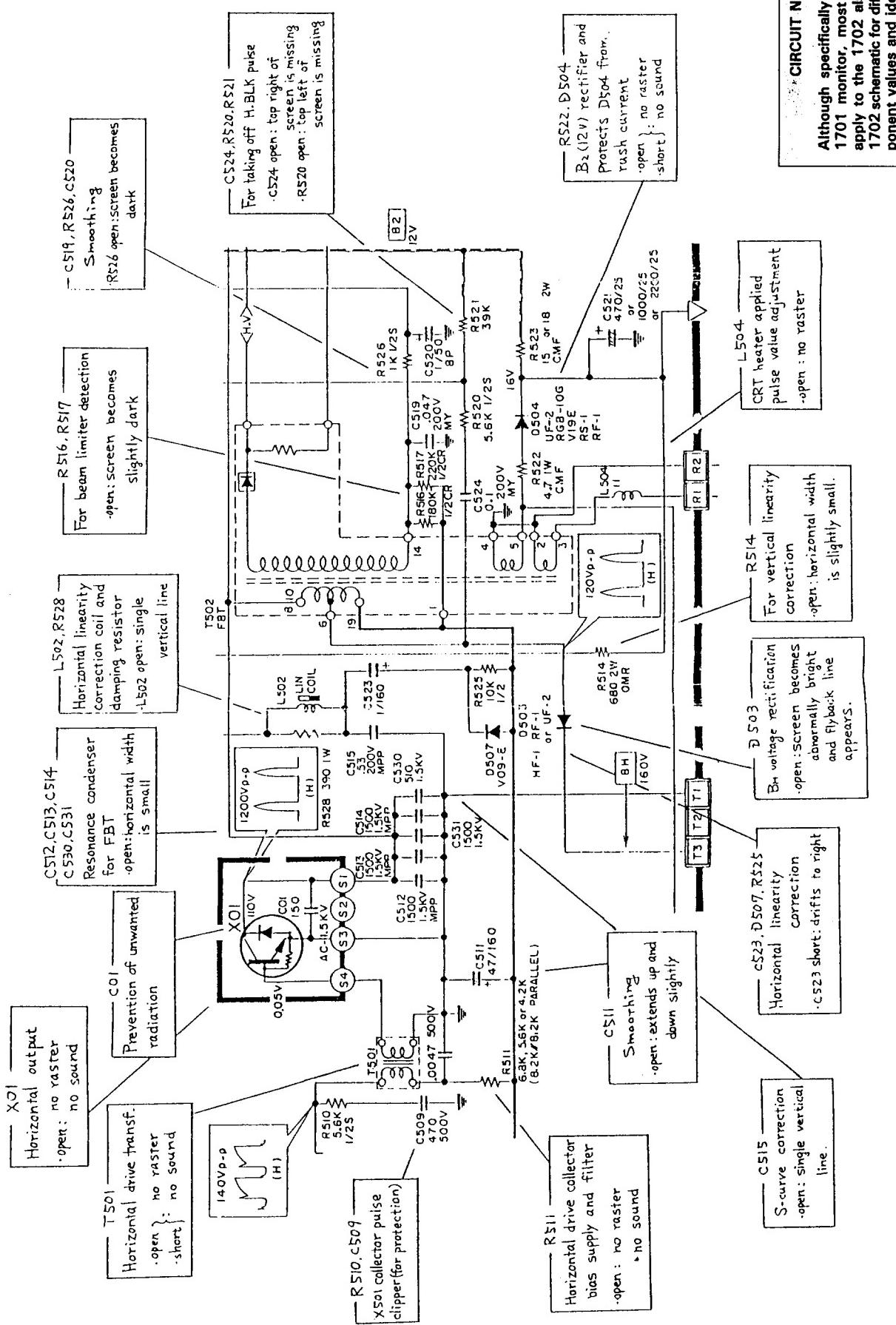
< VERTICAL CIRCUIT >

- V. oscillation stop (single horizontal line)
- faulty V. sync.
- faulty V. amplitude
- faulty V. linearity

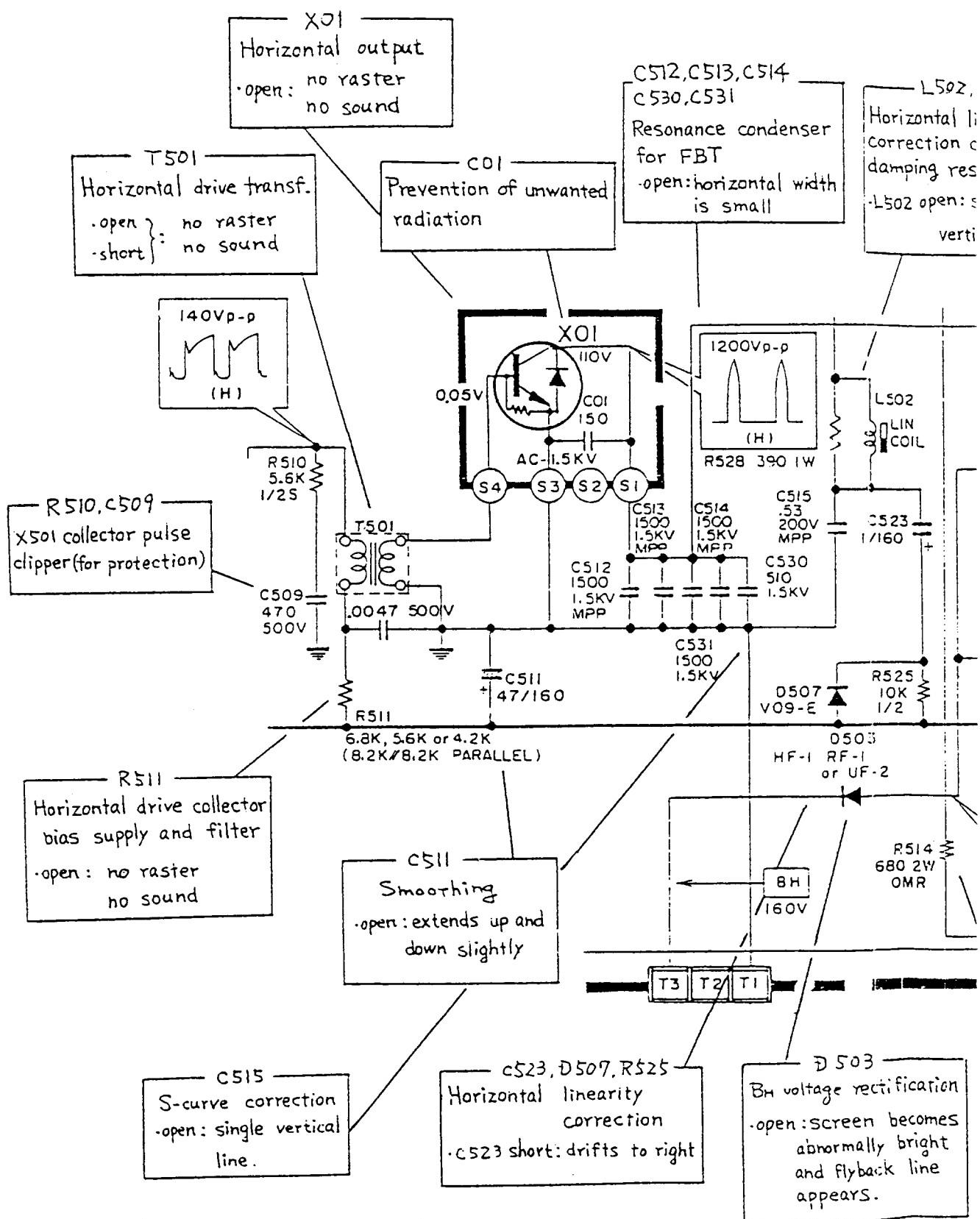
CIRCUIT NOTES

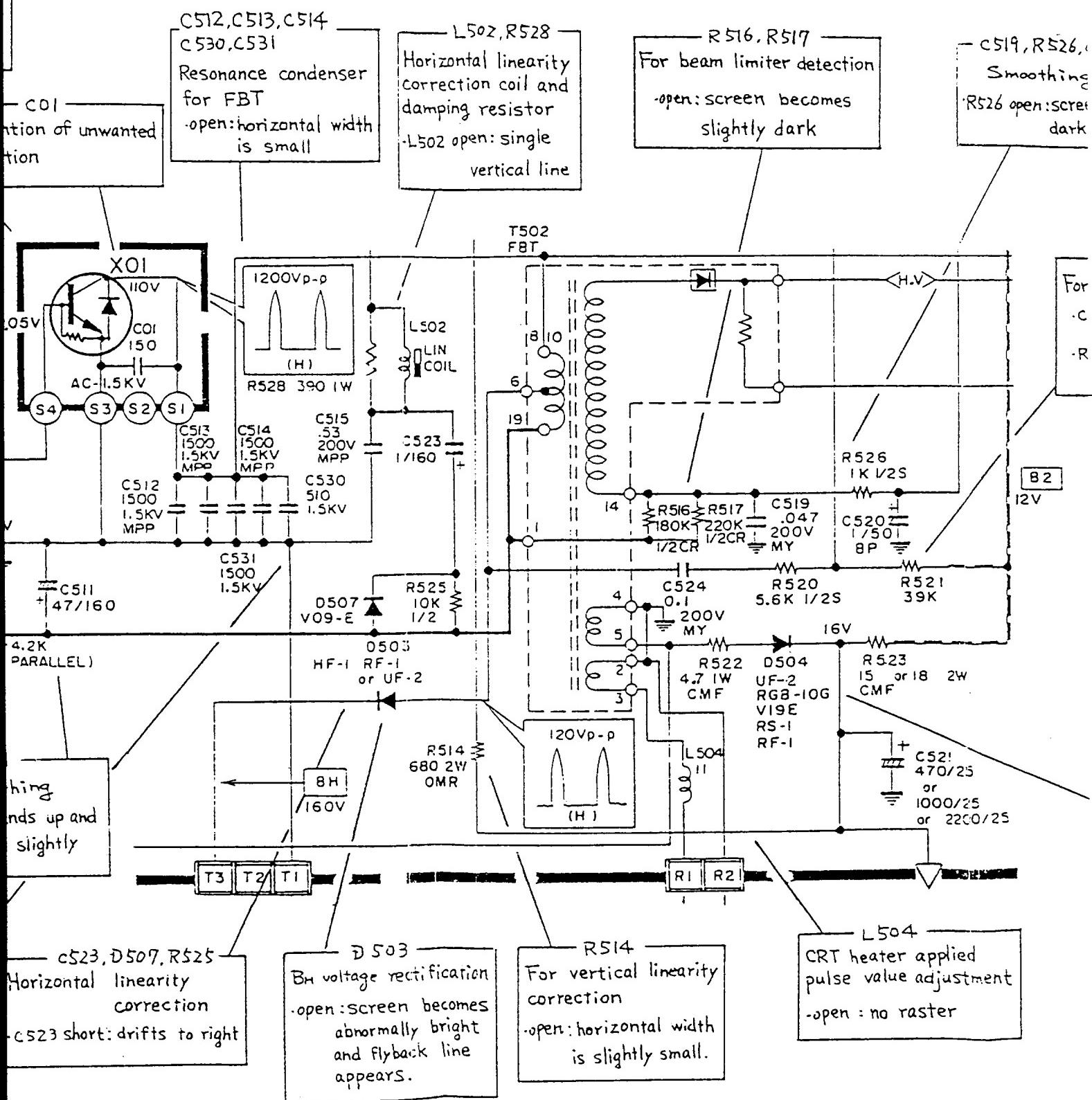
Although specifically written on the 1701 monitor, most circuit theories apply to the 1702 also. Refer to the 1702 schematic for differences in component values and identification.

HORIZONTAL OUTPUT CIRCUIT

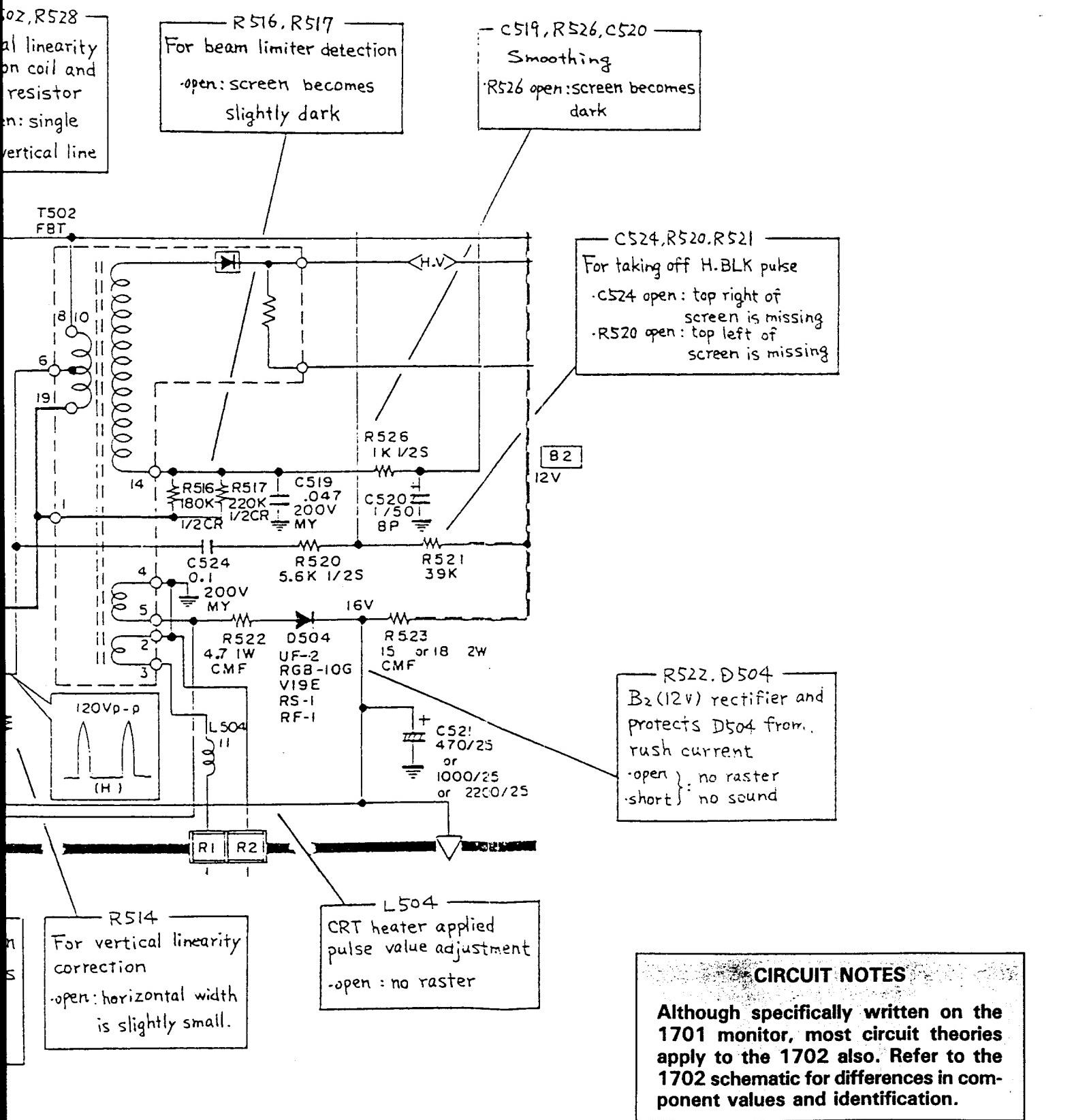


Although specifically written on the 1701 monitor, most circuit theories apply to the 1702 also. Refer to the 1702 schematic for differences in component values and identification.

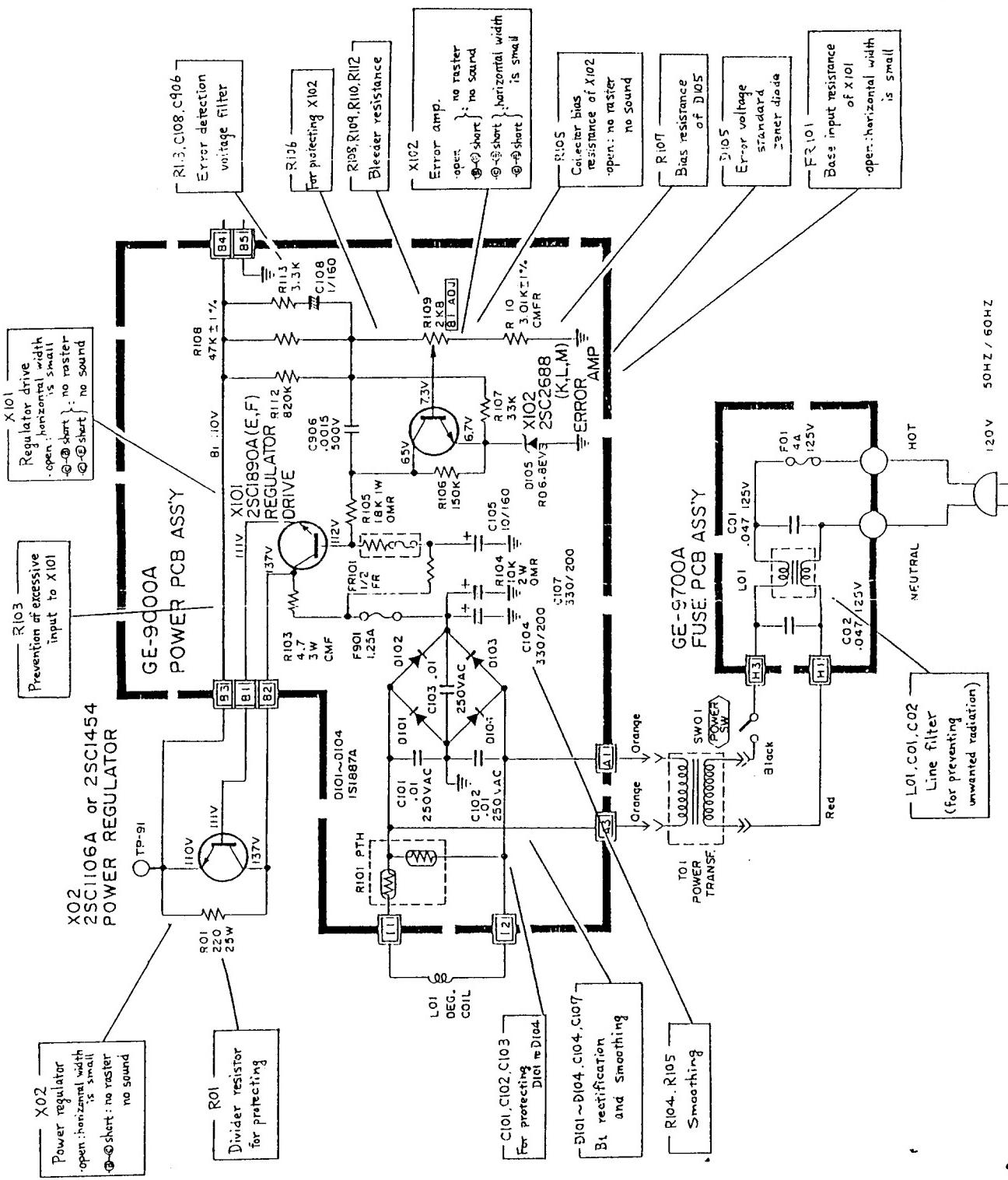




HORIZONTAL OUTPUT CIRCUIT



POWER CIRCUIT



CIRCUIT NOTES

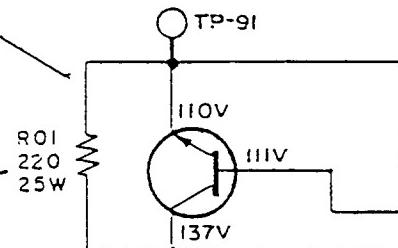
Although specifically written on the 1701 monitor, most circuit theories apply to the 1702 also. Refer to the 1702 schematic for differences in component values and identifications.

X02
Power regulator
• open: horizontal width
is small
• short: no raster
no sound

R01
Divider resistor
for protecting

X02
2SC1106A or 2SC1454
POWER REGULATOR

R103
Prevention of excessive
input to X101



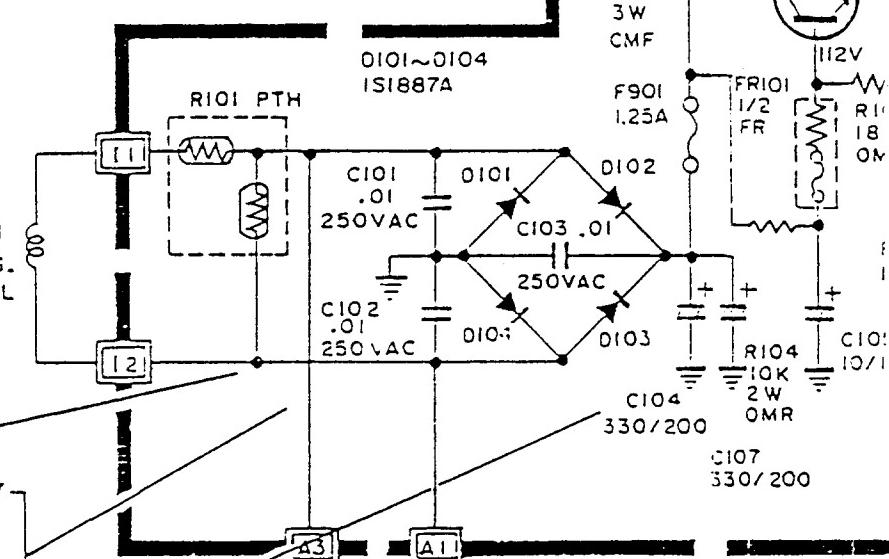
GE-9000A

POWER PCB ASS

C101, C102, C103
For protecting
D101 to D104

D101~D104, C104, C107
Bi rectification
and Smoothing

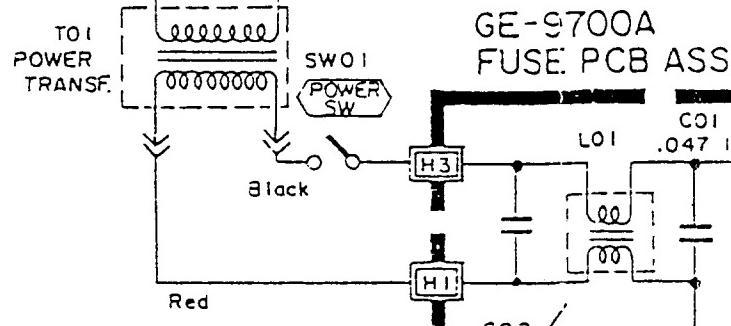
R104, R105
Smoothing

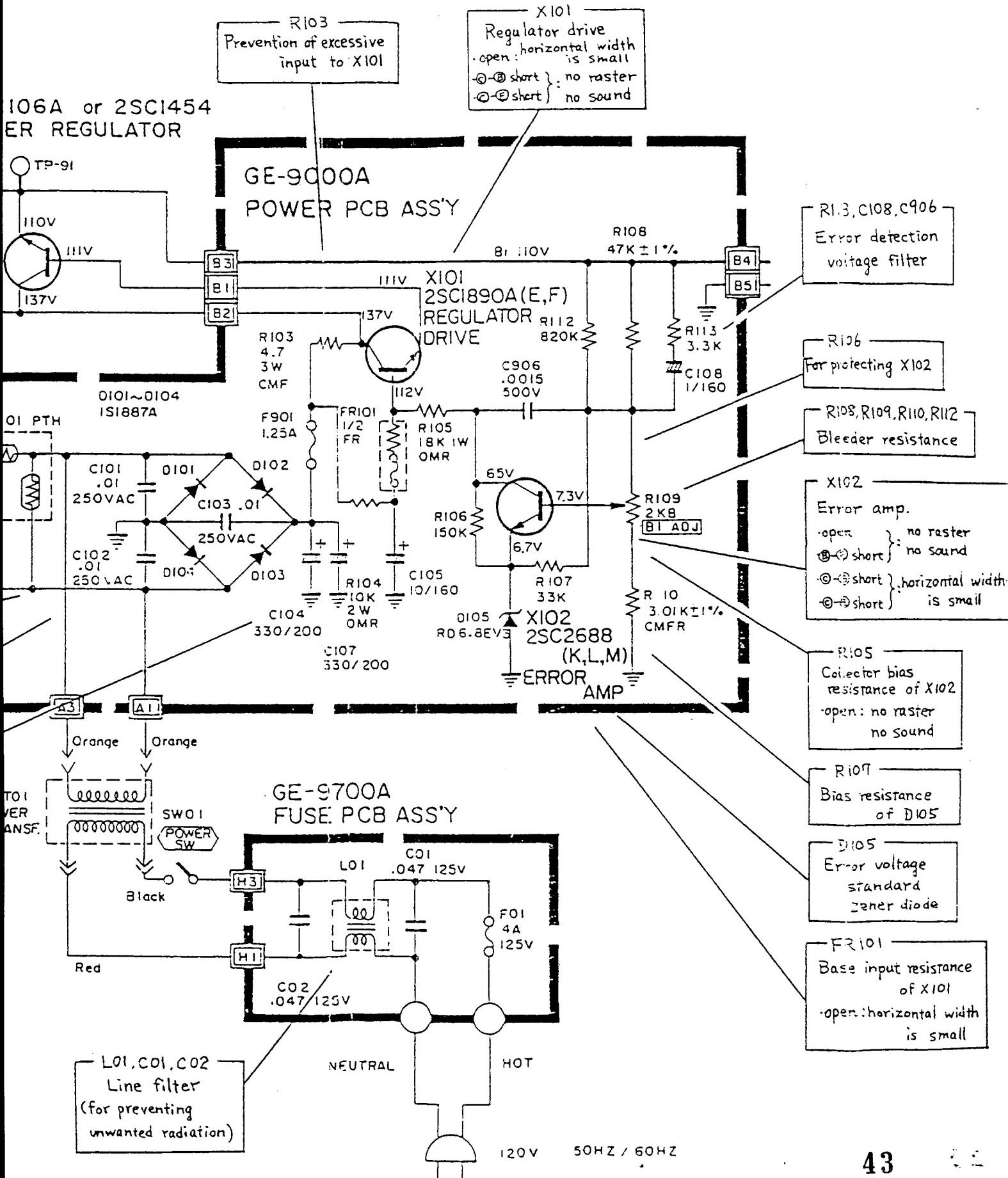


GE-9700A

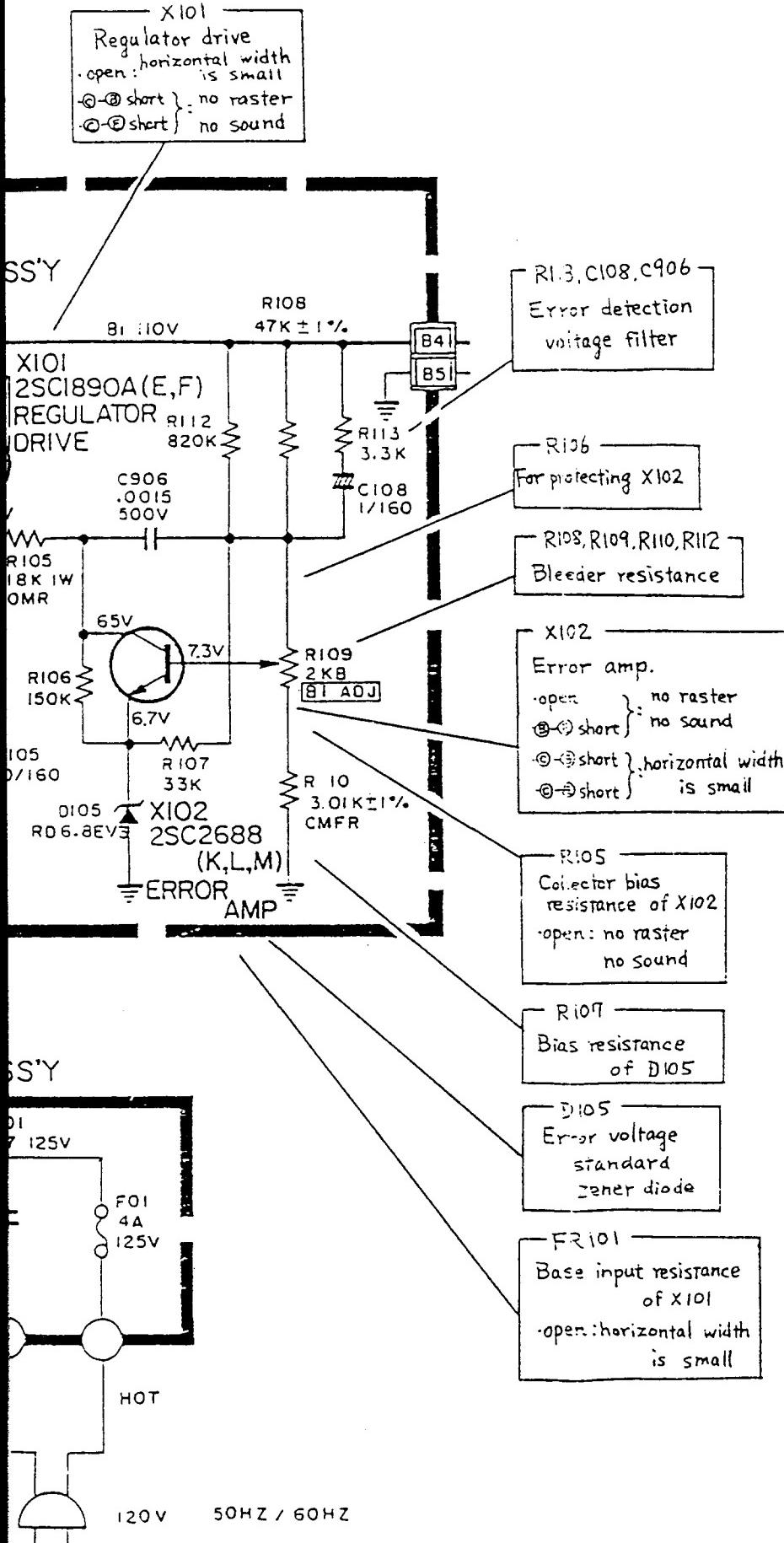
FUSE PCB ASS

L01, C01, C02
Line filter
(for preventing
unwanted radiation)





POWER CIRCUIT



CIRCUIT NOTES

Although specifically written on the 1701 monitor, most circuit theories apply to the 1702 also. Refer to the 1702 schematic for differences in component values and identification.

TROUBLESHOOTING GUIDE

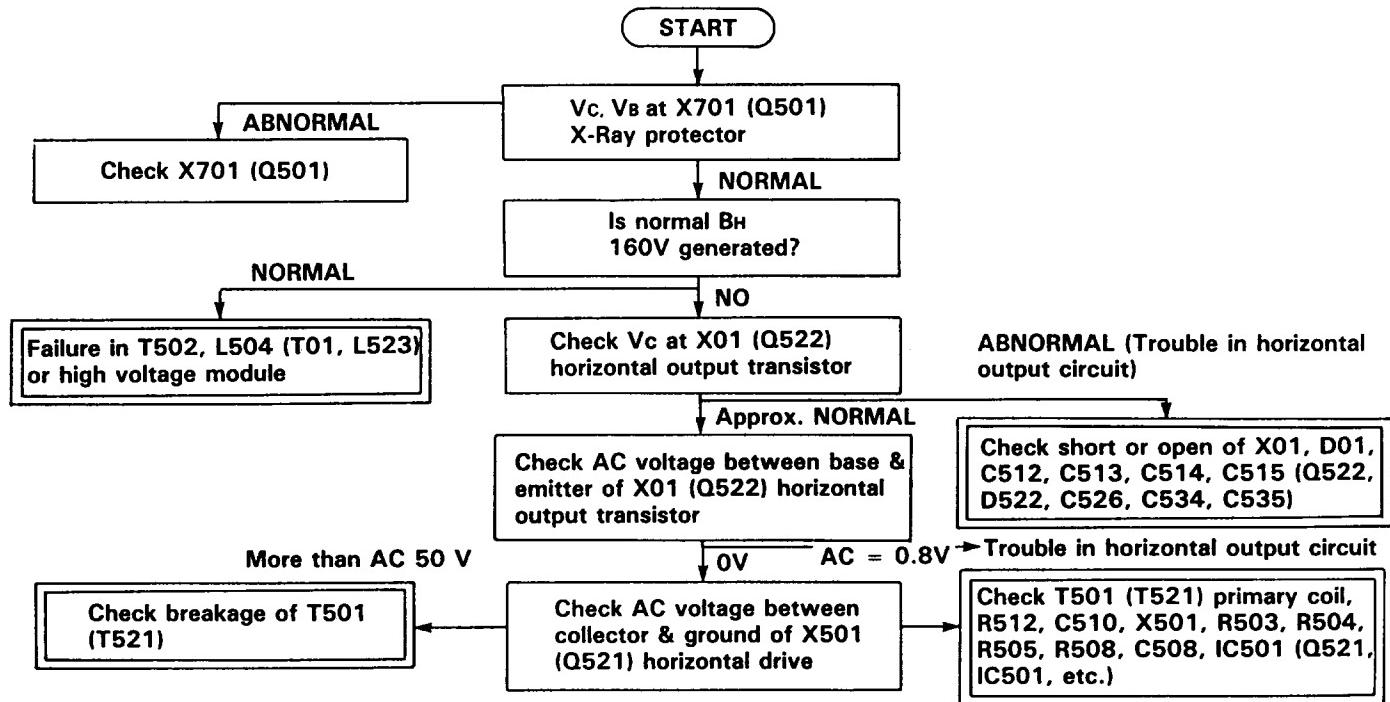
No raster, no sound (B_H is normal)

NOTE: 1702 locations in ().

[Cause] Horizontal deflection circuit

Problems in the horizontal deflection circuit hinder generation of high focusing voltage, B_H 160V and B₂ 12V, resulting in no raster, no sound.

1. As long as normal B_H 160V is generated, the horizontal output circuit properly operates, producing pulses during the flyback period of the saw-tooth wave current passing through the horizontal deflection coil. If a problem is found with normal B_H voltage, the problem area should be the secondary coil of the flyback transformer.
2. When the AC voltage between base and emitter of the horizontal output transistor X01 (Q522) is about 0.8V, it is supplied with input pulses. The problem is therefore in the horizontal output circuit. When, however, X01 (Q522) is shorted, this AC voltage is not indicated even if there are input pulses at X01 (Q522).
3. AC voltage is measured between the collector and ground of X501 (Q521) horizontal drive as shown. When the specified voltage is shown on the meter, the horizontal output circuit is the problem; while, when there is no voltage indication, the trouble is in some element(s) preceding X501 (Q521). Check if those transistors and ICs are damaged using a voltage measurement.



No raster, no sound (B1 is abnormal)

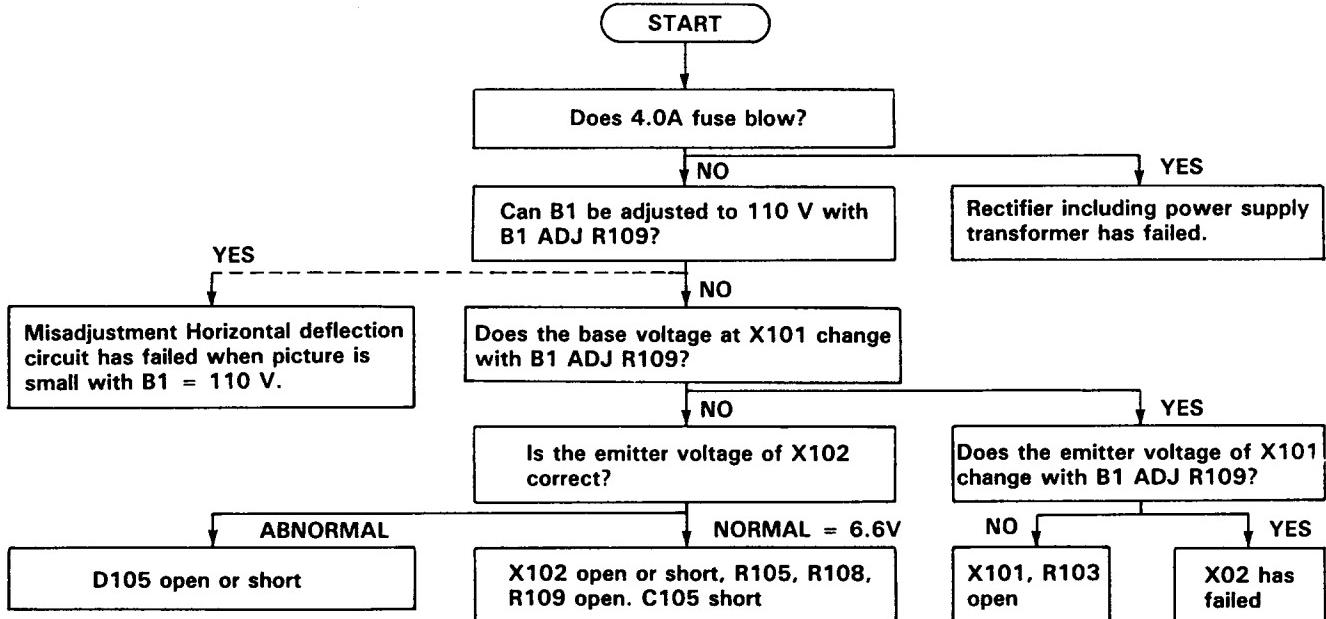
NOTE

1702 locations in (). The regulator PCB assembly used in 1702 models differs from the 1701 power PCB assembly. The B1 voltage circuits should be checked beginning with IC901.

[Cause]

Abnormal B1 voltage indicates trouble in the power supply circuit. When B1 voltage is not only low but also abnormally high, X701 (Q501) of the X-ray protector is turned on, setting the collector voltage to 0 V. The horizontal oscillator is then disabled resulting in no raster and no sound.

1. When D105, R105, R108, R109 are open, the base voltage of X101 and X102 rise to increase B1 voltage to more than 130V. This causes the X-ray protector to work, resulting in no raster.
2. If the base voltage drops as when R103 is open or C105 is shorted, the B1 voltage is reduced to less than 40 V. This will mostly result in no raster, no sound.
3. When the B1 voltage drops to about 70 V, because R910 is open and D105 is shorted, the screen becomes dark and the raster size is reduced because of insufficient horizontal and vertical amplitude.



No picture (no raster) with normal sound

NOTE: 1702 locations are in ().

[Cause] Malfunction of the video amplifier IC201, X202 (IC201, Q201)

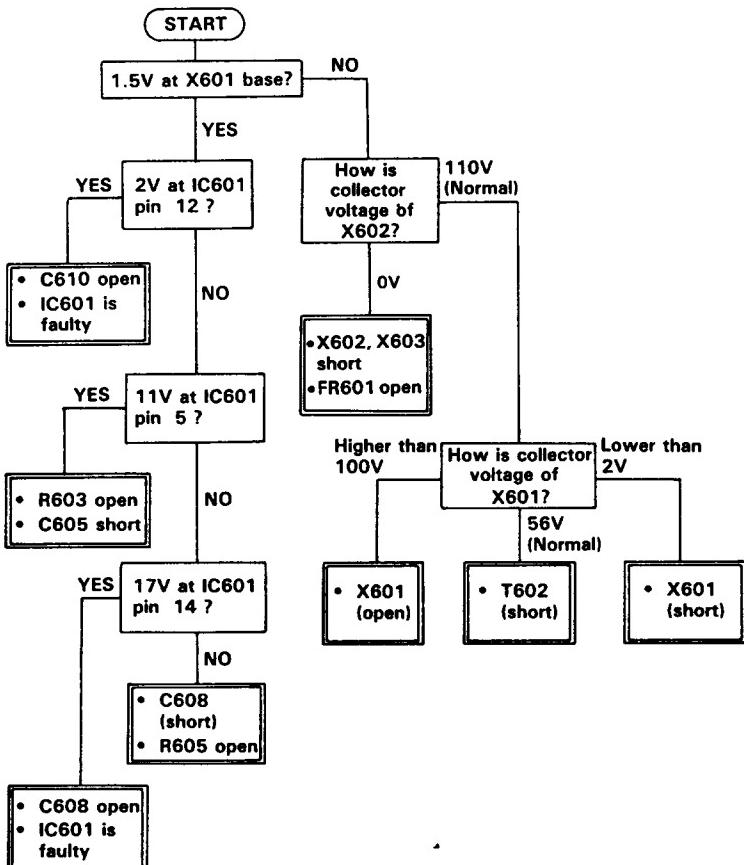
The video signal and the audio signal output are supplied respectively to the video amplifier IC201 and the audio circuit IC601. Sound is had but no picture; therefore, the faulty part is IC201 and its external elements. Since pin 16 of the IC201 to the cathode of CRT is connected by a DC-coupled amplifier, a fault raising the emitter voltage of X202 (Q201) will cause the three initial output transistors to cut off, resulting in no raster.

Check also the screen grid circuit for igniting the CRT heater and the high voltage module.

No sound (with normal picture)

**NOTE: 1701 — Flowchart
1702 — Audio circuit has been reduced to IC601.**

[Cause] Trouble in the audio circuit IC601, X601, X603 or X604 are faulty.



Only single horizontal line, normal sound

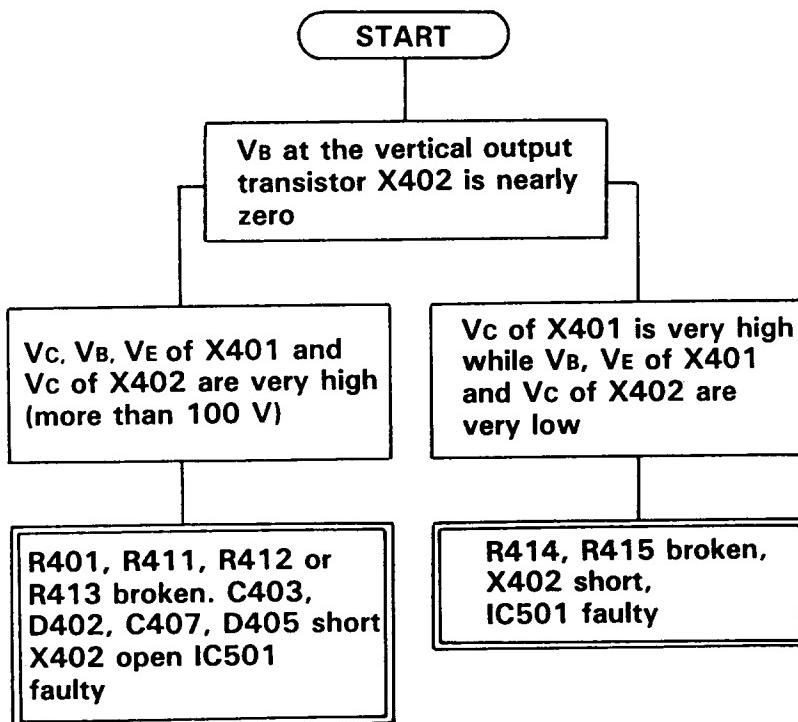
NOTE: 1701 — First check if FR401 is broken or not. If this is broken, the trouble is due to short of X401 or break of D401.

1702 — Circuits in 1702 monitor differ but the operation remains the same. Check vertical controls/deflection circuits.

[Cause] Malfunction of the vertical deflection circuit. When the vertical deflection circuit is faulty, saw-tooth current is not applied to the vertical deflection coil, resulting in a single horizontal line. During troubleshooting, reduce brightness contrast to prevent an ion spot on the CRT.

1. R401 broken, C403, D402, C413 short: B2 12V is not supplied, disabling IC501.
2. R411, R412 broken, C407 short: the voltage at IC501 pin 3 is set to zero disabling the V-amplifier and the voltage at pin 2 is set to zero to turn off X402.
3. R414, R415 are broken: V_B of X401 is zero disabling X401 and X402.
4. Also check if C402 is short or open.
5. Too high V_B of X402 is because of C401 short or failure in IC501 or X402.

Note: When the voltage generator fails to supply B2 12V to the secondary coil of the flyback transformer of the horizontal output circuit due to malfunction, a single horizontal line and no sound will result.



[Faulty parts and problems other than described]

| | |
|---------------------------------------|---|
| X401 open D401 short C408 short | Vertical amplitude small (6 - 8 cm) Picture appears only on the lower half of the screen |
| R403 faulty | A single thick (ca. 5 mm) horizontal line |
| R404 faulty | When turning V. HOLD, a black belt (V blanking signal) appears at the center of screen. The whole screen is dark and flickers. |
| R405 faulty | A single horizontal line. A picture flashing at about 1 second interval appears on the upper half of the screen. |
| R407 faulty | A picture of about 4 cm at the center of the screen. About 25 irregular lines appear on the upper half of the screen. |
| R408 and R409 faulty | Vertical amplitude small (about 15 cm) |
| R410 faulty | Vertical amplitude small (about 2 cm). Picture goes slightly up and down and flickers. |
| R416 faulty C409 open | Vertical flyback line appears. |
| R419 faulty | Small number of irregular lines |

Improper horizontal or vertical synchronization

NOTE: 1701 and 1702 locations are the same.

[Cause]

1) Defective horizontal and vertical sync:

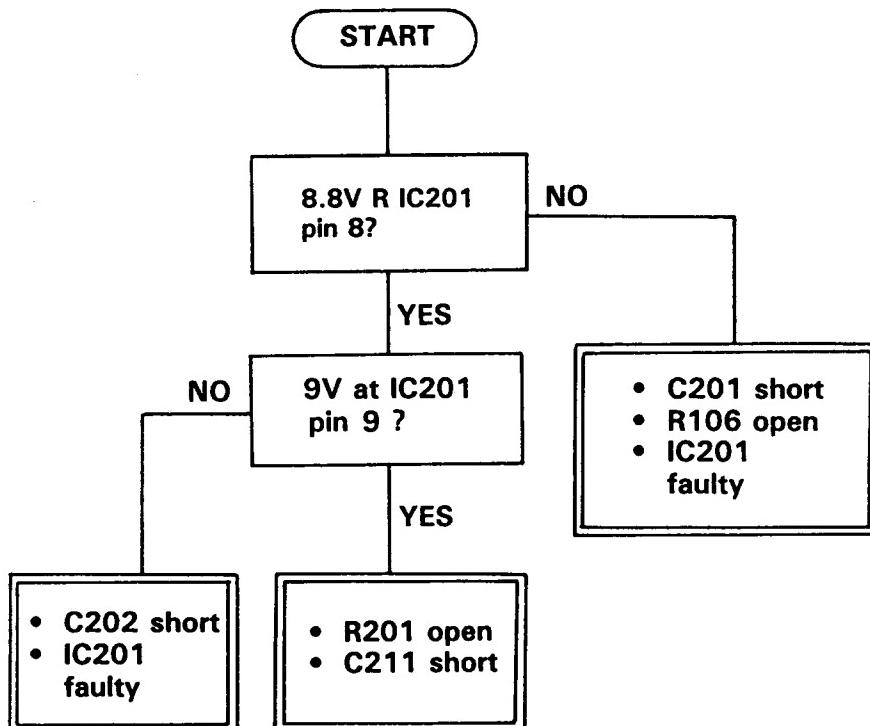
The sync separator and amplifier consists of an IC(IC201). The main cause of failure is often a failure of the IC itself. It is also necessary to be careful of a possible failure of the external components. Because the change of voltage at each pin of the IC is extremely small, it is very difficult to discover a failed element by measuring voltage.

2) Defective horizontal sync:

This is due to a failure of IC501 or the horizontal AFC circuit.

3) Defective vertical sync:

This is due to a failure of either the separator and amplifier for the vertical synchronous signal, or the vertical oscillator IC501 and its peripheral elements.



Monitor parts may be secured locally. JVC part numbers have been provided for your convenience. ONLY Commodore part numbers (C 314-xxx-xx) will be available from Commodore at this time.

1701 CHASSIS PARTS

| LOCATION | DESCRIPTION | JVC PART # | COM PART # |
|----------|---------------------------------------|-------------------------------------|---------------|
| DY01 | Deflection Yoke | * CJZ6134-00A | * C 314916-01 |
| J01 | Pin Jack Vid In | C39Z27-224 | |
| J02 | Pin Jack Aud In | C39Z27-223 | |
| L21 | Deg. Coil | * A39477-T | |
| R05 | Nonflammable Res. 220 ohm, 25W, ± 10% | * QRF258K-221 | * C 314917-01 |
| S01 | Power Switch | * CEX40097-002 | * C 314918-01 |
| SP01 | Speaker | EAS-10P225S | |
| T01 | Power Transformer | * CE30074-BOA | * C 314919-01 |
| T502 | HV Module | * CJ26107-00A | * C 314920-01 |
| V01 | Picture Tube | * 370FVB22(E) Sub: * 370ESB22(E) | |
| X01 | Transistor | * 2SD869 Sub: * 2SD898 | * C 314921-01 |
| X02 | Regulator | * 2SC1106A | * C 314922-01 |

*SAFETY COMPONENTS — Use EXACT replacement ONLY.

1701 CABINET PARTS

| LOCATION | DESCRIPTION | JVC PART # | COM PART # |
|-----------|------------------------|----------------|---------------|
| 1701/1702 | Front Cabinet | | C 314900-01 |
| 1701/1702 | Front Cntrl Panel Door | | C 314901-01 |
| 1701/1702 | Power Button | | C 314902-01 |
| 1701 | Front Model I.D. Plate | | C 314903-01 |
| 1701/1702 | RT Side Handle | | C 314904-01 |
| 1701/1702 | LT Side Handle | | C 314905-01 |
| 1701/1702 | Rear Cabinet | | C 314906-01 |
| 1701/1702 | Rear A/V Terminal Assy | | C 314907-01 |
| 1701/1702 | Top Cabinet Panel | | C 314908-01 |
| 1701/1702 | Replacement AC Cord | * QMP1460-244K | * C 314909-01 |
| 1701 | Users Manual | | C 314910-01 |
| 1701/1702 | Namplate (Logo) | | C 314911-01 |

*SAFETY COMPONENTS — Use EXACT replacement ONLY.

Monitor parts may be secured locally. JVC part numbers have been provided for your convenience. ONLY Commodore part numbers (C 314-xxx-xx) will be available from Commodore at this time.

MAIN PCB ASSEMBLY #GE-1000A

| LOCATION | DESCRIPTION | JVC PART # | COM PART # |
|----------------------------|-------------|-----------------|------------|
| INTEGRATED CIRCUITS | | | |
| IC1201 | | HA11401 | |
| IC1301 | | HA11247 | |
| IC1501 | | HA11244 | |
| IC1601 | | HA11107 | |
| TRANSISTORS | | | |
| X1101 | | 2SC1959 (Y) | |
| X1202 | | 2SA1015 (Y) | |
| X1250 | | 2SC1815 (Y, GR) | |
| X1301 | | 2SC1815 (Y, GR) | |
| X1351 | | 2SC1815 (Y, GR) | |
| X1352 | | 2SC1815 (Y, GR) | |
| X1401 | | 2SD401A (K, L) | |
| X1402 | | 2SD401A (K, L) | |
| X1501 | | 2SC2371V | |
| X1601 | | 2SD668A (B, C) | |
| X1602 | | 2SD668A (C) | |
| X1603 | | 2SB648A (C) | |
| X1701 | | 2SC1815 (Y, GR) | |
| DIODES | | | |
| D1201 | | IS2471V-Y | |
| D1202 | | W06B | |
| D1203 | | W06B | |
| D1301 | | 1S2473H-Y | |
| D1302 | | 1S2473H-Y | |
| D1401 | | 1S2471V-Y | |
| D1402 | Zener | RD11E (B)-Y | |
| D1405 | Zener | RD36E (B) | |
| D1503 | | RH-1 | |
| D1504 | | V19E | |
| D1505 | | RD11E (B)-Y | |
| D1506 | | W06A | |
| D1507 | | V09E | |
| D1508 | | IS2473H-Y | |
| D1601 | | MA26W0 (B) | |
| D1701 | Zener | HZ20-V1 | |

*SAFETY COMPONENTS – Use EXACT replacement ONLY.

Monitor parts may be secured locally. JVC part numbers have been provided for your convenience. ONLY Commodore part numbers (C 314-xxx-xx) will be available from Commodore at this time.

MAIN PCB ASSEMBLY #GE-1000A (Continued)

| LOCATION | DESCRIPTION | JVC PART # | COM PART # |
|---------------------------|--|---------------|------------|
| RESISTORS | | | |
| R1410 | Metal Film, 6.8, 1W, $\pm 5\%$ | QRX019J-6R8S | |
| R1414 | Oxide Metal Film, 3.3K, 1W, $\pm 5\%$ | QRG019J-332 | |
| R1415 | Oxide Metal Film, 2.7K, 1W, $\pm 5\%$ | QRG019J-272 | |
| R1421 | Oxide Metal Film, 6.8K, 2W, $\pm 5\%$ | QRG029-J-682 | |
| R1503 | Metal Film, 11.8K, 1/4 W, $\pm 1\%$ | QRV141F-1182 | |
| R1509 | Oxide Metal Film, 10K, 2W, $\pm 5\%$ | QRG229J-103 | |
| R1511 | Oxide Metal Film, 8.2K, 2W, $\pm 5\%$ | QRG229J-822 | |
| R1512 | Oxide Metal Film, 8.2K, 2W, $\pm 5\%$ | QRG229J-822 | |
| R1514 | Oxide Metal Film, 680, 2W, $\pm 5\%$ | QRG229J-681 | |
| R1515 | Metal Film, 8.2, 1W, $\pm 5\%$ | QRX019J-8R2 | |
| R1522 | Metal Film, 4.7, 1W, $\pm 5\%$ | QRX019J-4R7 | |
| R1523 | Oxide Metal Film, 18, 2W, $\pm 5\%$ | QRG029J-180 | |
| R1528 | Oxide Metal Film, 390, 1W, $\pm 5\%$ | QRG019J-391 | |
| R1532 | Zinc, 270, $\pm 10\%$ | ERZ-C05DK271 | |
| R1703 | Metal Film, 41.2K, 1/2W, $\pm 1\%$ | QRV121F-4122 | |
| T1704 | Metal Film, 9.53K, 1/4W, $\pm 1\%$ | QRV141F-9531Y | |
| VARIABLE RESISTORS | | | |
| R1209 | 1K | QVZ3234-013 | |
| R1303 | 50K | QVZ3234-054 | |
| R1305 | 20K | QVZ3234-024 | |
| R1408 | 220 | A76195-221 | |
| R1422 | 220 | A76195-221 | |
| R1428 | 50K | QVZ3243-054 | |
| R1524 | 4.7K | A76195-472 | |
| CAPACITORS | | | |
| C1202 | Tantalum, .47 μ F, 35V, $\pm 20\%$ | QEE61VM-474RZ | |
| C1204 | BiPolar Electrolytic, 3.3 μ F, 50V, $\pm 20\%$ | QEN61HM-335Z | |
| C1308 | Trimmer Cap | | |
| C1351 | BiPolar Electrolytic, 10 μ F, 16V, $\pm 20\%$ | QEN61CM-106Z | |
| C1402 | Tantalum, 2.2 μ F, 16V, $\pm 10\%$ | QEE61CK-225B | |
| C1407 | Electrolytic, 3.3 μ F, 50K, $\pm 10\%$ | QEM41HK-335M | |
| C1411 | Electrolytic, 100 μ F, 160V, +30%, -10% | QET52CR-107 | |
| C1412 | Electrolytic, 3.3 μ F, 160V, +30%, -10% | QET52CR-335 | |
| C1508 | Polypropylene, 5600 pF, 50V, $\pm 5\%$ | QFP31HJ-5625 | |
| C1511 | Electrolytic, 47 μ F, 160V, +30%, -10% | QET52CR-476 | |
| C1512 | Metalized Polypropylene, 1500 pF, 1600V, $\pm 5\%$ | QFZ0082-1525 | |

*SAFETY COMPONENTS — Use EXACT replacement ONLY.

Monitor parts may be secured locally. JVC part numbers have been provided for your convenience. ONLY Commodore part numbers (C 314-xxx-xx) will be available from Commodore at this time.

MAIN PCB ASSEMBLY # GE-1000A (Continued)

| LOCATION | DESCRIPTION | JVC PART # | COM PART # |
|-------------------------------|--|----------------|---------------|
| CAPACITORS (Continued) | | | |
| C1513 | Metalized Polypropylene, 1500 pF, 1600V, ± 5% | QFZ0082-1525 | |
| C1514 | Metalized Polypropylene, 1500 pF, 1600V, ± 5% | QFZ0082-1525 | |
| C1515 | Metalized Polypropylene, .53 µF, 200V, ± 10% | QFZ0067-5345 | |
| C1520 | BiPolar Electrolytic, 1 µF, 50V, ± 20% | QEN61HM-1052 | |
| C1522 | Metalized Polypropylene, 510 pF, 1600V, ± 5% | QFZ0082-5115 | |
| C1523 | Electrolytic, 1 µF, 160V, +30%, -10% | QET62CR-105Z | |
| C1530 | Metalized Polypropylene, 510 pF, 1600V, ± 5%, | QFZ-0082 511S | |
| C1531 | Metalized Polypropylene, 1500 pF, 1600V, ± 5% | QFZ-0082-152S | |
| C1610 | BiPolar Electrolytic, .417 µF, 50V, ± 20% | QEN61HM-474Z | |
| C1612 | Electrolytic, 10 µF, 160V, +30%, -10% | QET52CR-106 | |
| C1613 | Electrolytic, 10 µF, 160V, +30%, -10% | QET52CR-106 | |
| COILS | | | |
| L1201 | Peaking 820 µH | A04725-820Z | |
| L1203 | Peaking 270 µH | A04725-270Z | |
| L1351 | Peaking 22 µH | A04725-22Z | |
| L1352 | Peaking 22 µH | A04725-22Z | |
| L1353 | Peaking 22 µH | A04725-22Z | |
| L1502 | Linearity | A39835 | |
| L1503 | Width | CJ39503-00A | |
| L1504 | Heater | CJ30030-11 | |
| TRANSFORMER | | | |
| T1201 | Trap 3.58 | A75537-C | |
| T1301 | BP 3.58 | CE40191-00A | |
| T1501 | Horizontal Drive | A46022-8M | |
| T1503 | Side Pin | C39084-A | |
| T1602 | SOT | ETA24Z5AY | |
| OTHER | | | |
| DL1201 | Delay Line | CE40472-001 | |
| S1201 | Lever SW (Service) | CEX40078-001 | |
| Y1301 | Crystal | A75746 | |
| FR1401 | FR68 ohm, 2W, ± 5% | * QRH021J-680M | * C 314923-01 |
| FR1601 | FR100, 1/2W, ± 5% | * QRH127J-101M | * C 314924-01 |

*SAFETY COMPONENTS – Use EXACT replacement ONLY.

Monitor parts may be secured locally. JVC part numbers have been provided for your convenience. ONLY Commodore part numbers (C 314-xxx-xx) will be available from Commodore at this time.

POWER PCB ASSEMBLY # GE-9000A

| LOCATION | DESCRIPTION | JVC PART # | COM PART # |
|---------------------------|---|-------------------|---------------|
| TRANSISTORS | | | |
| X9101 | | 2SC1890A (E, F) | |
| X9102 | | 2SC2688 (K, L, M) | |
| DIODES | | | |
| D9101 | Silicon | 1S1887A | |
| D9102 | Silicon | 1S1887A | |
| D9103 | Silicon | 1S1887A | |
| D9104 | Silicon | 1S1887A | |
| D9105 | Zener | RD6.8EV3-Y | |
| RESISTORS | | | |
| R9103 | Metal Film, 4.7, 3W, $\pm 5\%$ | QRX039J-4RZ | |
| R9104 | Oxide Metal Film, 10K, 2W, $\pm 5\%$ | QRG029J-103A | |
| R9105 | Oxide Metal Film, 18K, 1W, $\pm 5\%$ | QRG019J-183S | |
| R9108 | Metal Film, 47K, 1/2W, $\pm 1\%$ | QRV121F-4702 | |
| R9110 | Metal Film, 3.01K, 1/4 W, $\pm 1\%$ | QRV141F-3011Y | |
| VARIABLE RESISTORS | | | |
| R9109 | (B ₁ ADJ), 2K B | QVZ3234-023 | |
| CAPACITORS | | | |
| C9104 | Electrolytic, 330 μ F, 200V, +30%, -10% | QES720R-337M | |
| C9105 | Electrolytic, 10 μ F, 250V, +50%, -10% | QEZ0077-106M | |
| C9107 | Electrolytic, 330 μ F, 200V, +30%, -10% | QES720R-337M | |
| C9108 | Electrolytic, 1 μ F, 160V, +30%, -10% | QET52CR-105 | |
| OTHER | | | |
| F9101 | Fuse, 1.25A | * QMF51U1-1R25S | * C 314925-01 |
| FR9101 | FR 220 ohm, 1/2W, $\pm 5\%$ | * QRH127J-221M | * C 314926-01 |
| R9101 | Positor | * A75511 | |

*SAFETY COMPONENTS — Use EXACT replacement ONLY.

Monitor parts may be secured locally. JVC part numbers have been provided for your convenience. ONLY Commodore part numbers (C 314-xxx-xx) will be available from Commodore at this time.

CRT SOCKET PCB ASSEMBLY #GE-3000A

| LOCATION | DESCRIPTION | JVC PART # | COM PART # |
|---------------------------|--|--------------|---------------|
| TRANSISTOR | | | |
| X3101 | Silicon | 2SC2611 | |
| X3102 | Silicon | 2SC2611 | |
| X3103 | Silicon | 2SC2611 | |
| RESISTORS | | | |
| R3112 | Oxide Metal Film, 12K, 2W, $\pm 5\%$ | QRG029J-123 | |
| R3113 | Oxide Metal Film, 12K, 2W, $\pm 5\%$ | QRG029J-123 | |
| R3114 | Oxide Metal Film, 12K, 2W, $\pm 5\%$ | QRG029J-123 | |
| R3115 | Composition, 3.3K, 1/2W, $\pm 10\%$ | QRZ0039-332 | |
| R3116 | Composition, 4.7K, 1/2W, $\pm 10\%$ | QRZ0039-472 | |
| R3117 | Composition, 3.3K, 1/2W, $\pm 10\%$ | QRZ0039-332 | |
| VARIABLE RESISTORS | | | |
| R3102 | B Cut Off, 5K Ω , B | QVZ3234-053 | |
| R3104 | R Cut Off, 5K Ω , B | QVZ3234-053 | |
| R3106 | G Cut Off, 5K Ω , B | QVZ3234-053 | |
| R3109 | R Drive, 220 Ω , B | QVZ3234-022 | |
| R3111 | G Drive, 220 Ω , B | QVZ3234-022 | |
| CAPACITORS | | | |
| C3101 | Electrolytic, 10 μ F, 250V, +50%, -10% | QEZ0077-106M | |
| C3102 | Ceramic, 1000 pF, 3000V, +100%, -0% | QCZ9017-102M | |
| COILS | | | |
| L3101 | Peaking, 180 μ H | QQL043K-181 | |
| L3102 | Peaking, 390 μ H | A04725-390 | |
| L3103 | Peaking, 390 μ H | A04725-390 | |
| L3104 | Peaking, 390 μ H | A04725-390 | |
| OTHER | | | |
| | CRT Socket | * A75522 | * C 314927-01 |

*SAFETY COMPONENTS — Use EXACT replacement ONLY.

Monitor parts may be secured locally. JVC part numbers have been provided for your convenience. ONLY Commodore part numbers (C314-xxx-xx) will be available from Commodore at this time.

CONTROL PCB ASSEMBLY #GE-4000A

| LOCATION | DESCRIPTION | JVC PART # | COM PART # |
|---------------------------|------------------|--------------|------------|
| VARIABLE RESISTORS | | | |
| R4003 | Tint, 10K | CEX40206-B14 | |
| R4004 | Color, 10K | CEX40206-B14 | |
| R4006 | Cont, 10K | CEX40206-B14 | |
| R4012 | Bright, 10K | CEX40206-B14 | |
| R4015 | V Hold, 10K | CEX40205-A14 | |
| R4016 | H Position, 500 | CEX40205-B52 | |
| R4022 | Sub Bright, 4.7K | QVZ3507-472 | |
| R4024 | Volume, 200K | CEX40205-A25 | |

*SAFETY COMPONENTS — Use EXACT replacement ONLY.

FUSE PCB ASSEMBLY #GE-9700A

| LOCATION | DESCRIPTION | JVC PART # | COM PART # |
|-------------------|--|----------------------------|---------------|
| CAPACITORS | | | |
| C9701 | Metalized Mylar, .047 μ F, AC125V, \pm 20% | QFZ9008-473M | |
| C9702 | Metalized Mylar, .047 μ F, AC125V, \pm 20% | QFZ9008-473M | |
| OTHER | | | |
| F9701 | Fuse 4A Line Filter | * QMF61U1-4ROS A39475-J | * C 314928-01 |

*SAFETY COMPONENTS — Use EXACT replacement ONLY.

1701 Schematic Notes

VOLTAGE & WAVEFORM NOTATIONS — Voltage readings and waveform measurements were taken with a color video signal injected at the video input terminal. Figures in () represent voltage readings taken while receiving a black and white sign. Each variable resistor was set to condition at time of shipment. After adjustments have been made, the figures will vary and the figures should be used for reference only.

VOLTAGE READINGS — Multimeter set at $20K\Omega/\text{volt DC}$.
All values given are DC voltages.

REFERENCE WAVEFORMS — Scope sweep speed set at:
Hor - $20 \mu\text{s/div}$ Vert - 5V/div ;
Unless other speed is specified.

SCHEMATIC NOTES — Unless specified otherwise:

Resistors : All values are in ohms, 1/4 watt carbon

Capacitors: Values of 1 or higher are pF.

Values less than 1 are μF , 50V, ceramic

Electrolytic values are in μF , NP indicates non-polar (bipolar)

Inductors: Values are in uH

Ⓐ indicates a test point connection

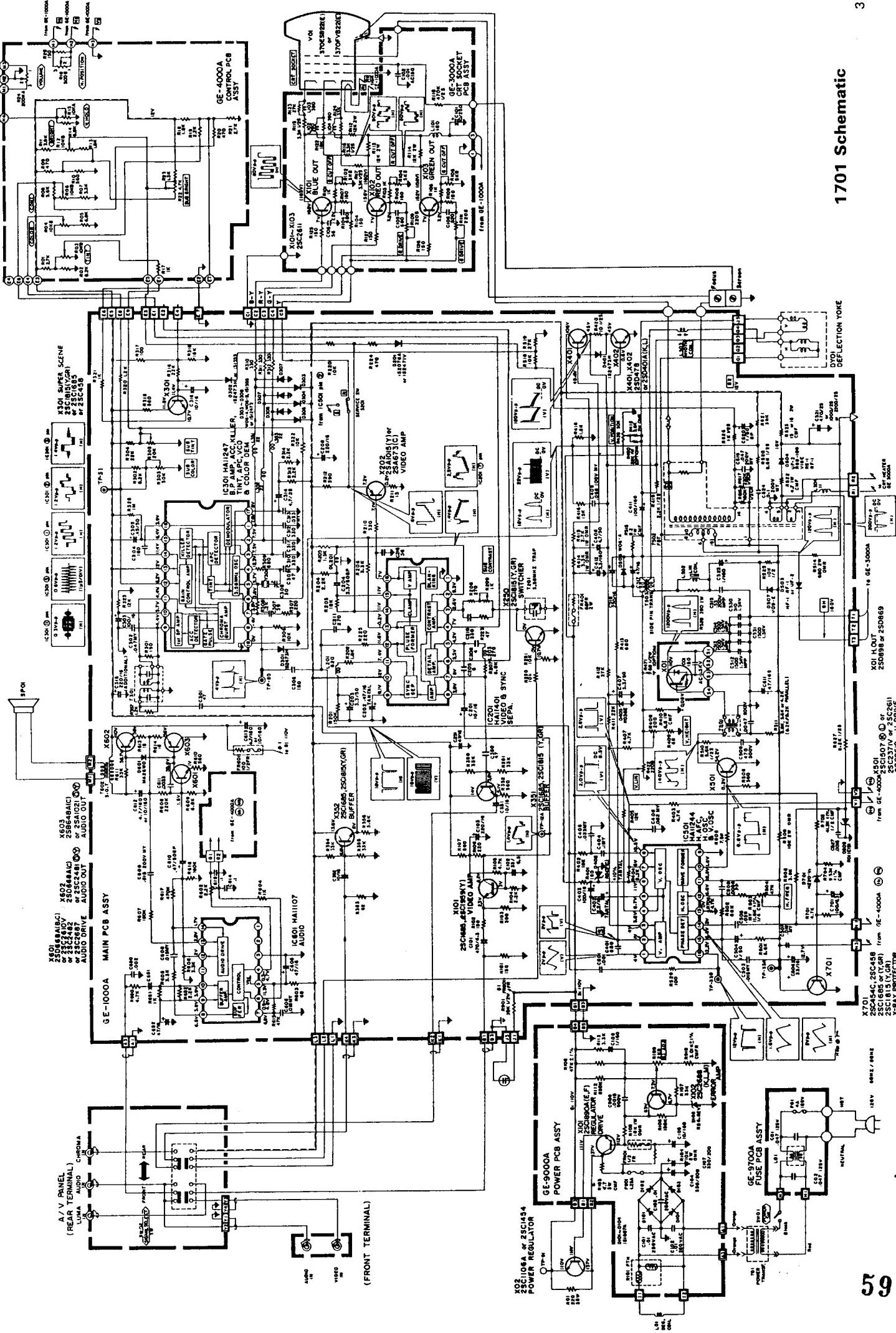
⏚ indicates chassis ground

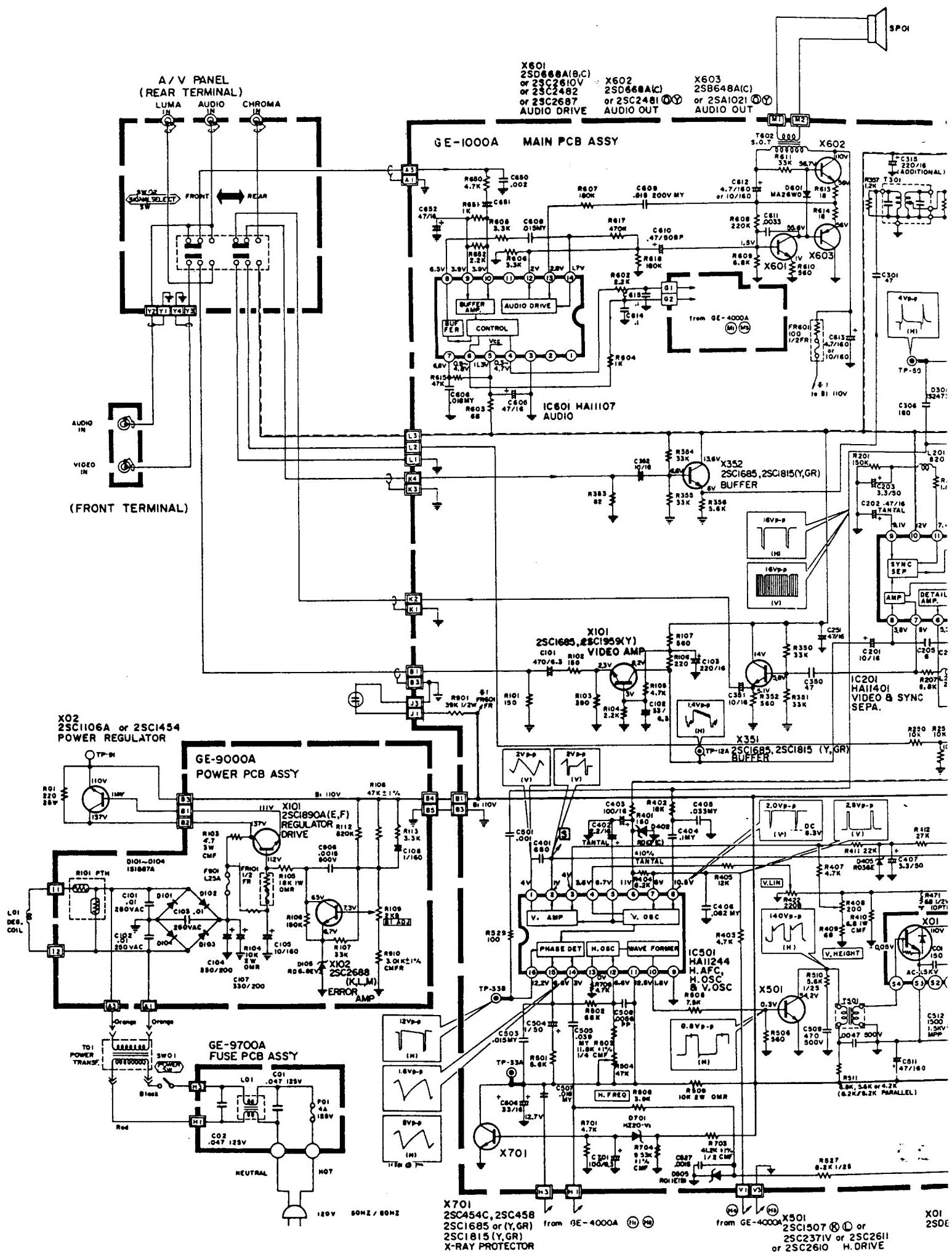
Hz indicates cycles per second

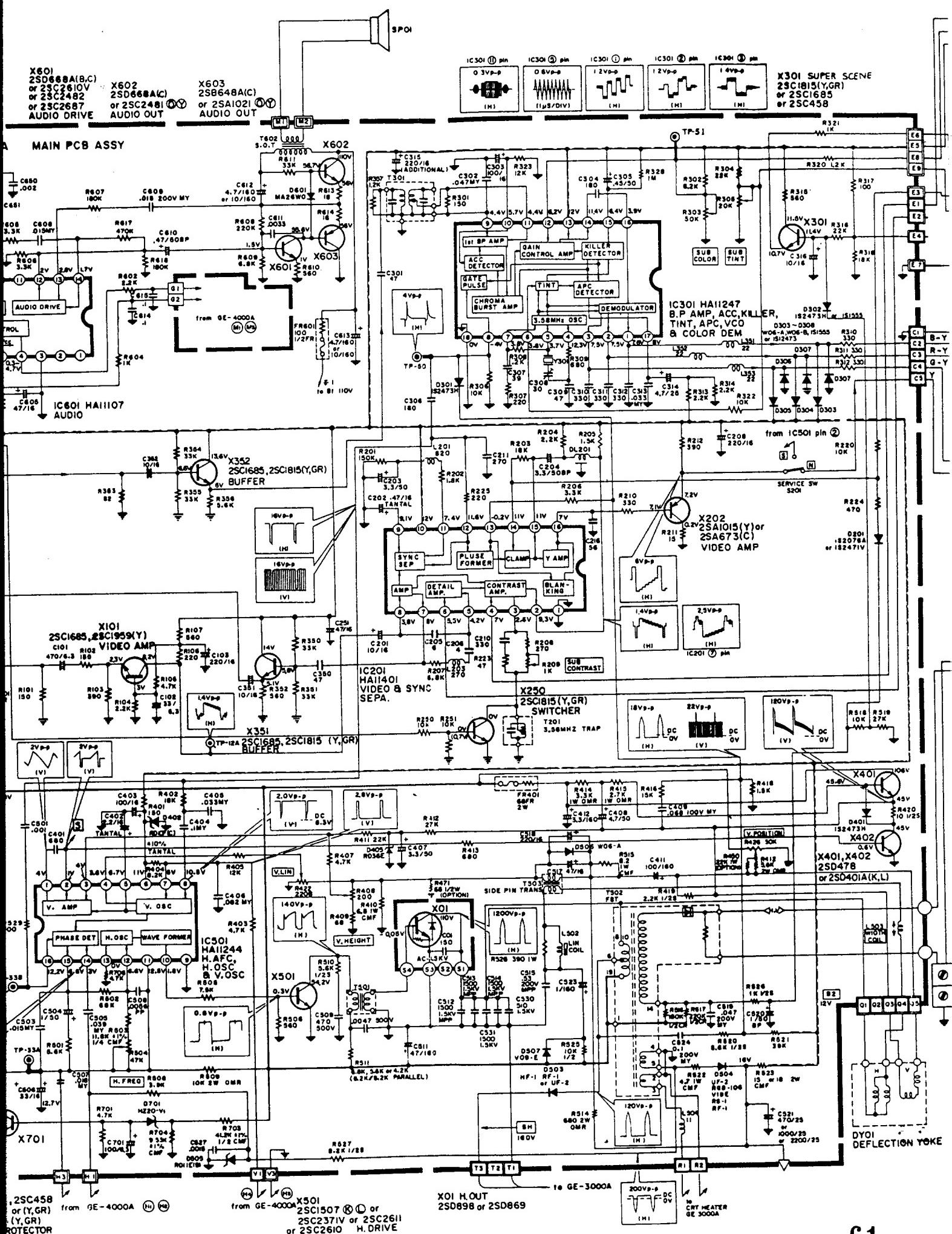
SAFETY — For safety, maximum reliability, and continued good performance, use specified replacement parts. All safety items have been identified with the symbol *. FR is an abbreviation for FUSIBLE RESISTOR . FR's act like fuses and are used as safety items. They are to be replaced with specified parts.

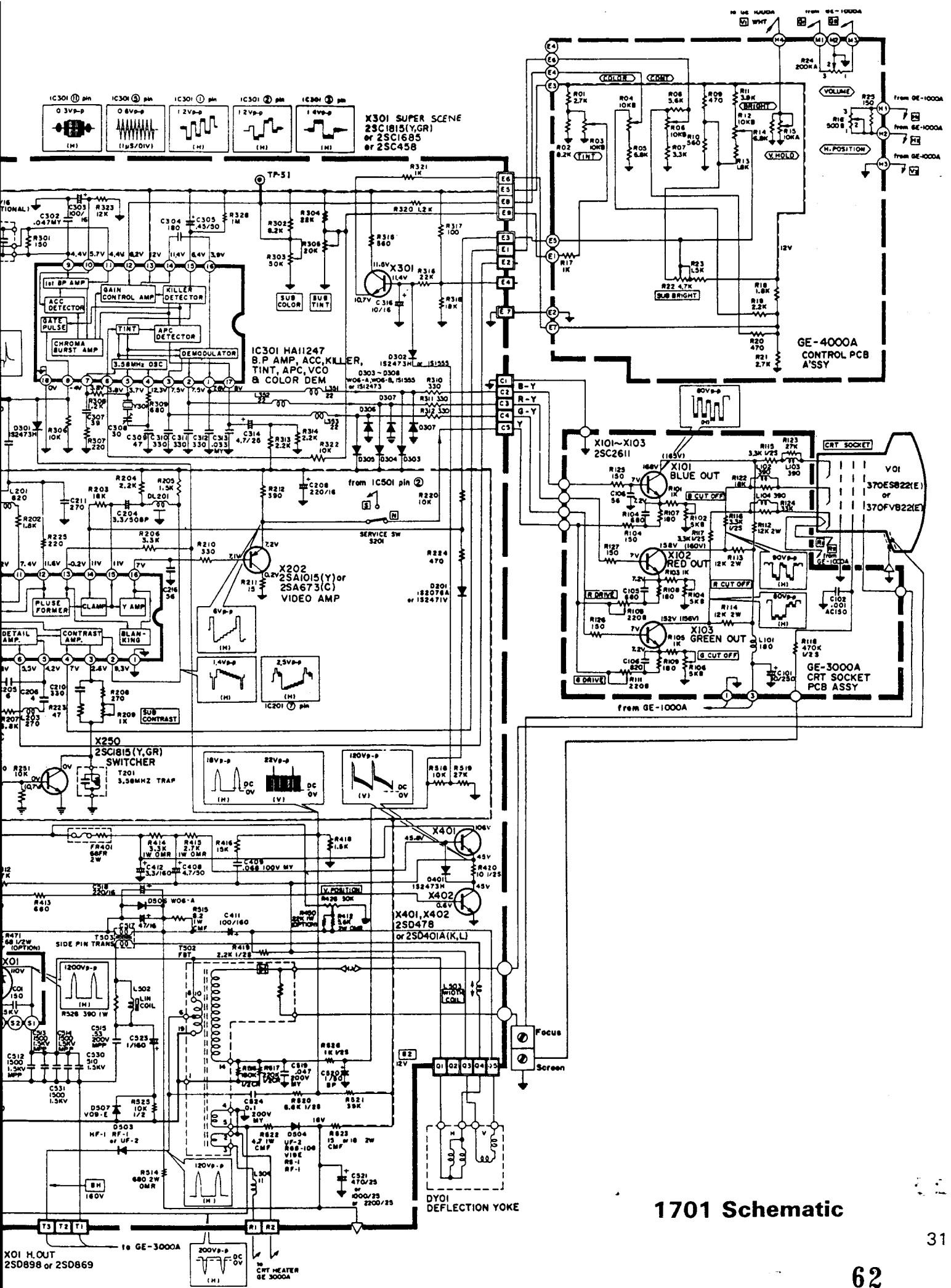
NOTICE — This circuit diagram and the circuit constants are subject to change for improvement without notice.

1701 Schematic









TROUBLESHOOTING GUIDE – 1702

Additional information to aid in the troubleshooting of the 1702 monitor has become available from our technical support group. It has been collated into chart form and is being provided to facilitate repairs on this model. The 1702 is the most common monitor in the field at this time.

CHART TERMINOLOGY:

| | |
|-------------------------|--|
| CHECKPOINTS | Point of circuit to be tested |
| CAUSE | Possible reason for INCORRECT signal or voltage |
| POSSIBLE SOLUTION | Most likely failure |
| MISSING | Signal or voltage not present or INCORRECT |
| PATH | COMPONENTS or TRACES directly related to that portion of the circuit being checked |

TIPS:

- When testing IC circuits, always check for proper BIAS and B+ voltages on all legs of the chip.
- An open horizontal oscillator or driver circuit will cause the B1, 125 volt line, to raise to 158 VDC. To troubleshoot this failure, use the DEAD SET, B+ ABNORMAL Chart.
- An improperly regulated B1 will cause a BLOOMING effect. Use the DEAD SET, B+ ABNORMAL to troubleshoot this SYMPTOM.
- When the horizontal oscillator is triple firing, the monitor makes a BUZZING sound and may blow the 1A. FUSE. The horizontal/vertical oscillator chip, IC 501, is the most common problem.
- If the monitor blows the 1A. fuse, it may short out the horizontal output transistor. A common problem is that the 2 matched diodes, D523, test good but actually are shorted.
- A wavy picture and weak video are often repaired by replacing C101, the $470\mu\text{F}$, 6.3V. cap.

TROUBLESHOOTING GUIDE

Dead Set, B+ Abnormal

NOTE: DC Voltages may be LOWERED due to open ELECTROLYTIC CAPACITORS.

When more than one possible cause is given, follow each DC path back to its SCANNED RECTIFIED SOURCE.

| CHECKPOINT | CAUSE | POSSIBLE SOLUTION |
|--|---|--|
| Is F901 open? (4 amp fuse) | Possible short in bridge rectifiers. | Check for shorted diode(s) D901-904, T901 or D905. |
| Is F902 open? (1 amp fuse) | Possible short in high voltage or excessive load. | Check for shorted Q522, D523 or scan voltage source. |
| Is voltage at pin 1 of IC901 148 VDC? (voltage regulator) | Possible open path from bridge to regulator. | Check for open R902, R907, or C904 or F902. |
| Is voltage at pin 2 of IC901 126 VDC? (voltage regulator) | Possible open reference circuit. | Check for open R904, R908, R906 or C907. |
| Is voltage at pin 4 of IC901 125 VDC? (voltage regulator) | Possible open feed back path or defective chip. | Check for open R901 or IC901. |
| Is voltage at positive side of C905 18 VDC? | Possible defective bridge. | Check for open or shorted D905. |

If the DC fuse (902) is open and no SHORTED parts are readily apparent, then TEMPORARILY jump it out with a 100 watt 125 volt LIGHT BULB. This will absorb MOST OF THE OVER CURRENT ON THE (125) B1 LINE. EXTREME caution should be used in this operation, as some resistors on the scan voltage lines may start to burn due to shorted components.

LIGHT BULB GLOWS AT 75% INTENSITY

| | | |
|--|--|---|
| Is voltage at pin 4 of IC901 or 125 VDC? | High resistance short or short on secondary side of Flyback. | Check Q522 for leakage — CONTINUE to next line. |
| Is voltage on cathode side of D422 25 VDC? | Defective diode or short on 125V line. | Check D422 for a short or open — CONTINUE to next line. |
| Is R421 open or BURNING? | Short in 25.8 VDC line. | Check IC421 for a short. |

Dead Set, B+ Abnormal (Continued)

| CHECKPOINT | CAUSE | POSSIBLE SOLUTION |
|--|-------------------------|---|
| Is voltage on cathode side of D522 13 VDC? | Short on 13.8 VDC line. | Open legs on 13.8 volt line until short clears. |
| Is voltage on cathode side of D551 12 VDC? | Defective diode. | Check D551 for a short or open. |
| | Short on 12.5 VDC line. | CONTINUE to next line. |
| Is R551 open or BURNING? | Short on 12.5 VDC line. | Check IC601 for a short. |
| Is voltage on cathode side of D521 200 VDC? | Defective diode. | Check D521 for a short or open. |
| | Short on 200 VDC line. | Check line for shorted parts. |
| NOTE: The above chart may also be used without the light bulb to isolate missing scan voltages. | | |

No Raster, Sound Normal, High Voltage Normal

NOTE: Make sure that the heaters in the CRT are lit before using this chart.

| CHECKPOINT | CAUSE | POSSIBLE SOLUTION |
|---|--|---|
| Is Video signal present at terminal C4? | Improper bias to R-G-B amplifiers. | REFER TO NO VIDEO CHART. |
| Is 200 VDC at positive side of C351? | No scan voltage. | Check D521 for open or short, L523 for open. |
| Is 171 VDC at collectors of Q351, Q352, Q353? | Open path from C351 to R-G-B amplifiers. | Check L351, R359, R358 and R357 for open. |
| Is 400 VDC at pin 8 of CRT? | Missing screen voltage. | Check for open R363, HV bleeder resistor or shorted C352. |

No Raster, No Sound, B+ Normal

NOTE: Q501 (X-RAY PROTECTOR) should be checked for proper operation before STARTING with flow chart.

When more than one possible cause is given, follow each DC path back to its SCANNED RECTIFIED SOURCE.

| CHECKPOINT | CAUSE | POSSIBLE SOLUTION |
|--|-----------------------------|--|
| Is Horizontal sawtooth at pin 10 of IC501? | Missing 12.2 DCV pin 11. | Check for proper DC Voltage. |
| | Possible open IC501. | Replace chip IC501. |
| Is Horizontal sawtooth at base of Q521? | Missing 0.3 DCV bias. | Check for proper DC Voltage. |
| | Open bias resistors. | Check R521, R522. |
| | Open or shorted Transistor. | Check Q521. |
| Is Horizontal sawtooth at collector of Q521? | Missing 9.5 VDC. | Check for proper DC Voltage. Check T521, R511 or Q521. |
| | Open or shorted Transistor. | |
| Is Horizontal sawtooth at base of Q522? | Improper bias reference. | Check for open T521, R524 or Q522 |
| | Open or shorted Transistor. | |
| Is Horizontal sawtooth at collector of Q522? | Missing 126 VDC. | Check for proper DC Voltage. Check T523 pin 1 & 8, or Q522. |
| | Open or shorted Transistor. | |

NOTE: Continuous shorting of Q522 may be caused by a shorted Flyback transformer or open damping capacitors C526, C534 and C535.

No Chroma, Sound Normal, Black & White Tracking Normal

NOTE: This chart was written with the FIVE PIN cable installed in the front ports.

When more than one possible cause is given, follow each DC path back to its SCANNED RECTIFIED SOURCE.

| CHECKPOINT | CAUSE | POSSIBLE SOLUTION |
|---|--|---|
| Is Chroma signal at pin 7 of IC201? | Missing 7.2 VDC. | Check for proper DC voltage. |
| | Open IC201. | Replace IC201. |
| Is Chroma signal at base of Q341? | Missing 5.8 VDC. | Check for proper DC voltage. |
| | Open path from pin 7 of IC201. | Check R341, R342, C341 or Q341. |
| Is Chroma signal at emitter of Q341? | Missing 5.1 VDC. | Check for proper DC voltage. |
| | Open or shorted Q341. | Check DCV at emitter & collector R343. |
| Is Chroma signal at base of Q342? | Missing 6.2 VDC. | Check for proper DC voltage. |
| | Open or shorted Q342. Open path from Q341. | Check R346, R347, R345, C343 or AV Switch. |
| Is Chroma signal at emitter of Q342? | Missing 5.5 VDC. | Check for proper DC voltage. |
| | Open or shorted Q342. | Check R348. Replace Q342. |
| Is Chroma signal at pin 9 of IC301? | Missing 12 VDC pin 13. | Check for proper DC voltage. |
| | Open path from Q342. | Check C301, R324, T301 or R301. Replace IC301. |
| Is ADJUSTABLE 5.5 VDC at pin 12 of IC301? | Open Chroma or sub Chroma controls or DC voltages. | Check voltages from control PCB assembly. |
| | Open path from AV PCB. | Check R303, R302 or IC301. |
| Is horizontal keying pulse at pin 8 of IC301? | Open path from pin 11 of T523. | Check for open D301, R228, R529, R537 or C533. |
| Is 3.58 MHz signal at pin 5 of IC301? | Open oscillator circuit. | Check for open X301, C308, C309, C307, R307, R308 and R309 or replace IC301. |
| Are Chroma signals at bases of Q351, Q352 and Q353? | Open path from IC301. | Check for open L301, L302, L303, R310, R311, R312, R373, R374, R375 or shorted C311, C312 and C313. |
| | Defective output IC301. | Check IC301. |

No Video, Sound Normal, Raster Normal

NOTE: A common error made is that the AV slide switch is in the wrong position.

When more than one possible cause is given, follow each DC path back to its SCANNED RECTIFIED SOURCE.

| CHECKPOINT | CAUSE | POSSIBLE SOLUTION |
|--|--|---|
| Is video signal at emitter of Q101? | Open path from AV terminal. | Check for open C101, R101, R102. |
| Is video signal at collector of Q101? | Missing 7.6 VDC. | Check for proper DC voltage. |
| | Open or shorted component transistor circuit. | Check R106, R107, C103 or Q101. |
| | Open or shorted transistor. | Check Q101. |
| Is video signal at pin 8 of IC201? | Open path from Q101 to IC201. | Check C201 for open. |
| Is video signal at pin 2 of IC201? | Missing 9 VDC. | Check for proper DC voltage. |
| | Open IC201. | Replace IC201. |
| Is video signal at pin 15 of IC201? | Missing 10 VDC. | Check for proper DC voltage. |
| | Open path from pin 2 of IC201. | Check for open DL201, C204. |
| Is Horizontal blanking pulse on pin 13 of IC201? | Open path from pin 11 of Flyback Transformer. | Check for open R206, R228, R529, R537 and C533. |
| Is video signal at pin 16 of IC201? | Improper voltages on pin 14 of IC201. | Check voltages from control PCB assembly. |
| | Open IC201. | Replace IC201. |
| Is video signal at base of Q201? | Open path from pin 16 of IC201. | Check for open R210 and R230. |
| Is video signal at emitter of Q201? | Missing emitter voltage or base bias voltage. | Check for proper DC voltages. |
| | Open Q201. | Replace Q201. |
| Is video signal at point C4 on CRT PCB? | Open path from emitter of Q201 to terminal C4. | Check for open service switch or wire. |

No Sound, Video Normal

When more than one possible cause is given, follow each DC path back to its SCANNED RECTIFIED SOURCE.

| CHECKPOINT | CAUSE | POSSIBLE SOLUTION |
|--|--------------------------------------|--|
| Is audio signal at pin 2 of IC601? | Missing 5.4 VDC. | Check IC601. |
| | Open path from AV terminal. | Open R601 and C601. |
| Is (ADJUSTABLE) 3 VDC at pin 4 of IC601? | Missing 3 VDC. | Check for proper DC voltage. |
| | Open path from control PCB assembly. | Open R608, R871 or R872. |
| Is audio signal at pin 8 of IC601? | Missing 12.5 VDC pin 9. | Check for proper DC voltage. |
| | Missing 11.8 VDC pin 1. | Check for proper DC voltages. |
| | Defective filter/feed back circuit. | Check for open R604, R606 or open or shorted C603, C604 or C605. |
| | Defective IC601. | Check IC601. |
| Is audio signal at point M1? | Open path from IC601 to speaker. | Check open or shorted C607 or open or shorted speaker. |

No Vertical Sweep

| CHECKPOINT | CAUSE | POSSIBLE SOLUTION |
|---------------------------------------|---|--|
| Is vertical signal at pin 5 of IC501? | Missing 11.3 VDC on pin 6 | Check for proper DC voltage. |
| | Possible open chip. | Replace chip. |
| Is vertical signal at pin 2 of IC501? | Open feed back path from IC421. | Check for proper DC voltage at IC421. |
| | Defective IC421. | Replace IC421 or IC501. |
| Is vertical signal at pin 2 of IC421? | Missing 26 VDC pin 3 or 25.8 VDC pin 7. | Check for proper DC voltage. |
| | Defective IC421. | Replace IC421. |
| Is vertical signal at V1 and V2? | Open path from output of IC421 to ground. | Check for open yoke or C424, R422, R410. |

NOTE: The vertical amplifier in IC501 is supported by a feed back signal from pin 2 of IC421 to pin 3 of IC501. If this signal is not present, the vertical amp in IC501 will not bias on. Check feed back resistors and capacitors carefully.

Cannot Set Black & White Tracking

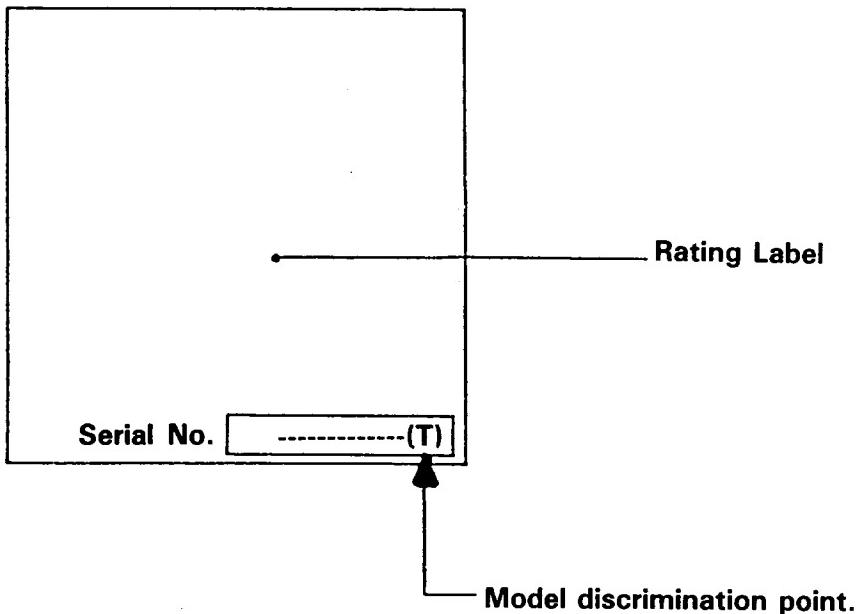
NOTE: Improper color will be evident in this condition.

| CHECKPOINT | CAUSE | POSSIBLE SOLUTION |
|--|--|---|
| Is video signal present at terminal C4? | Improper bias to R-G-B amplifiers. | REFER TO NO VIDEO CHART. |
| Is 6.9 VDC at bases of Q351, Q352 & Q353? | Open path from IC301. | REFER TO NO CHROMA CHART. |
| | Open or shorted transistors. | Replace defective transistor. |
| Is 171 +/ - VDC at collectors of Q351, Q352, Q353? | Open path from C351 to R-G-B amplifiers. | Check L351, R359, R358, R357 and C351 for open. |
| Is 140 VDC at pins 3, 7 and 9 of the CRT? | Improper cathode bias. | Check for open R360, R361 and R362. |
| Is 200 VDC at positive side of C351? | No scan voltage. | REFER TO NO RASTER CHART. |

1702 MODEL IDENTIFICATION

BEFORE servicing a 1702 Monitor, please NOTE:

Some models are distinguished with the letter "T" next to the manufacturer's serial number.



This designation indicates that a TOSHIBA picture tube and deflection yoke were used. A difference in electrical specifications is required. The connect schematic and parts list is identified 1702 "T".

Monitor parts may be secured locally. JVC part numbers have been provided for your convenience. ONLY Commodore part number (C 314-xxx-xx) will be available from Commodore at this time.

1702 CHASSIS PARTS

| LOCATION | DESCRIPTION | JVC PART # | COM PART # |
|----------|---------------------------------------|----------------|---------------|
| DY01 | Deflection Yoke | * CJ26161-00A | * C 314929-01 |
| J1821 | US Pin Jack Vid In | C39207-004 | |
| J1822 | US Pin Jack Aud In | C39207-003 | |
| L01 | Degausing Coil | * A39477-T | |
| Q1522 | Silicon Transistor | * 2SD1426 | * C 314930-01 |
| R01 | Unflammable Resistor, 280Ω, 20W, ±10% | * QRF208K-281 | * C 314931-01 |
| S01 | Power Switch | * CEX40097-002 | * C 314918-01 |
| SP01 | Speaker 8Ω, 2W | EAS-10P225S | |
| T01 | HV Module | * CJ26156-00B | * C 314932-01 |
| V01 | Picture Tube | * 370FVB22(E) | |
| | PC Magnet | CE40305-00B | |
| | Neon Lamp | QLZ9015-001 | |

*SAFETY COMPONENTS — Use EXACT replacement ONLY.

1702 CABINET PARTS

| LOCATION | DESCRIPTION | JVC PART # | COM PART # |
|-----------|----------------------------|----------------|---------------|
| 1701/1702 | Front Cabinet | | C 314900-01 |
| 1701/1702 | Front Control Panel Door | | C 314901-01 |
| 1701/1702 | Power Button | | C 314902-01 |
| 1702 | Front Name Plate | | C 314903-02 |
| 1701/1702 | RT Side Handle | | C 314904-01 |
| 1701/1702 | LT Side Handle | | C 314905-01 |
| 1701/1702 | Rear Cabinet | | C 314906-01 |
| 1701/1702 | Rear A/V Terminal Assembly | | C 314907-01 |
| 1701/1702 | Top Cabinet Panel | | C 314908-01 |
| 1701/1702 | Replacement AC Cord | * QMP1460-244K | * C 314909-01 |
| 1702 | Users Manual | | C 314910-02 |
| 1701/1702 | Logo Nameplate | | C 314911-01 |

*SAFETY COMPONENTS — Use EXACT replacement ONLY.

Monitor parts may be secured locally. JVC part numbers have been provided for your convenience. ONLY Commodore part numbers (C 314xxx-xx) will be available from Commodore at this time.

MAIN PCB ASSEMBLY #GE-1003A

| LOCATION | DESCRIPTION | JVC PART # | COM PART # |
|----------------------------|-------------|-----------------|---------------|
| INTEGRATED CIRCUITS | | | |
| IC1201 | | HA11401 | |
| IC1301 | | HA11247 | |
| IC1421 | | AN5515 | |
| IC1501 | | HA11244 | |
| IC1601 | | AN5265 | |
| TRANSISTORS | | | |
| Q1101 | | 2SC1959 (Y) | |
| Q1201 | | 2SA1015 (Y, GR) | |
| Q1251 | | 2SC1815 (Y, GR) | |
| Q1301 | | 2SC1815 (Y, GR) | |
| Q1341 | | 2SC1815 (Y, GR) | |
| Q1342 | | 2SC1815 (Y, GR) | |
| Q1501 | | 2SA1015 (Y, GR) | |
| Q1521 | | 2SC1627A | |
| Q1522 | | * 2SD1426 | * C 314930-01 |
| DIODES | | | |
| D1201 | | 1SS133 | |
| D1202 | | W06B | |
| D1204 | | 1SS133 | |
| D1301 | | 1S1555 | |
| D1302 | | 1SS133 | |
| D1401 | Zener | MA4110 (M) | |
| D1421 | | 1SR124-400 | |
| D1422 | | 1SR124-400 | |
| D1501 | Zener | MA4110 (M) | |
| D1502 | | 1SS81 | |
| D1503 | | 1SS133 | |
| D1522 | | 1SR124-400 | |
| D1523 | | RM-2C | |
| D1524 | | U19E | |
| D1525 | Zener | MA4220 (M) | |
| D1541 | | 1SR124-400 | |
| D1551 | | 1SR124-400 | |

*SAFETY COMPONENTS — Use EXACT replacement ONLY.

Monitor parts may be secured locally. JVC part numbers have been provided for your convenience. ONLY Commodore part numbers (C 314-xxx-xx) will be available from Commodore at this time.

MAIN PCB ASSEMBLY #GE-1003A (Continued)

| LOCATION | DESCRIPTION | JVC PART # | COM PART # |
|---------------------------|-----------------------------------|-----------------|---------------|
| DIODES (Continued) | | | |
| D1701 | | 1SR124-400 | |
| D1702 | Zener | * HZ7B2L | |
| RESISTORS | | | |
| R1414 | Oxide Metal Film, 100Ω, 1W, ±5% | QRG019J-101S | |
| R1421 | Metal Film, 1.5Ω, 2W, ±5% | * QRX029J-1R5A | * C 314933-01 |
| R1511 | Oxide Metal Film, 56Ω, 1W, ±5% | QRG019J-560S | |
| R1523 | Oxide Metal Film, 1K, 1W, ±5% | QRG019J-102 | |
| R1526 | Carbon, 1K, 1/2W, ±5% | * QRD121J-102SY | |
| R1530 | Oxide Metal Film, 12, 1W, ±5% | QRG019J-120S | |
| R1531 | Metal Film, 47, 2W, ±5% | QRX029J-4R7A | |
| R1532 | Carbon, 1K, 1/2W, ±5% | * QRD121J-102SY | |
| R1534 | Oxide Metal Film, 470Ω, 1W, ±5% | QRG019J-471S | |
| R1551 | Metal Film, 2.7, 1W, ±5% | * QRX019J-2R7S | * C 314934-01 |
| R1607 | Metal Film, 5.6, 1W, ±5% | QRX019J-5R6S | |
| R1701 | Metal Film, 33, 1W, ±5% | * QRX019J-330S | |
| R1702 | Metal Film, 20K, 1/4W, ±1% | * QRV141F-2002Y | |
| R1705 | Metal Film, 14K, 1/4W, ±1% | * QRV141F-1402Y | |
| VARIABLE RESISTORS | | | |
| R1209 | Sub Cont., 1K | QVZ3230-013 | |
| R1303 | Sub Color, 50K | QVZ3230-054 | |
| R1305 | Sub Tint, 20K | QVZ3230-024 | |
| R1406 | V. Linearity, 200 | QVZ3234-022 | |
| R1408 | V. Height, 200 | QVZ3234-022 | |
| R1429 | V. Position, 500 | QVZ3211-052 | |
| R1504 | H. Frequency, 5K | CEX40202-053 | |
| CAPACITORS | | | |
| C1202 | Tantalum, .47 μF, 35V | QEE61VM-474BZ | |
| C1204 | BiPolar Electrolytic, 3.3 μF, 50V | QEN61HM-335Z | |
| C1308 | Trimmer | CEX40212-001 | |
| C1342 | BiPolar Electrolytic, 10 μF, 16V | QEN61CM-106Z | |
| C1402 | Tantalum, 2.2 μF, 16V | QEE61CK-225BZ | |
| C1404 | Mylar, .1 μF, 50V | QFZ0083-104M | |
| C1406 | Mylar, .056 μF, 50V | QFZ0083-563M | |

*SAFETY COMPONENTS — Use EXACT replacement ONLY.

Monitor parts may be secured locally. JVC part numbers have been provided for your convenience. ONLY Commodore part numbers (C 314-xxx-xx) will be available from Commodore at this time.

MAIN PCB ASSEMBLY #GE-1003A (Continued)

| LOCATION | DESCRIPTION | JVC PART # | COM PART # |
|-------------------------------|---|-----------------|---------------|
| CAPACITORS (Continued) | | | |
| C1423 | Electrolytic, 100 μ F, 35V | * QET51VR-107 | * C 314935-01 |
| C1425 | Electrolytic, 470 μ F, 35V | * QET51VR-477 | * C 314936-01 |
| C1426 | TF, .15 μ F, 50V | QFV81HJ-154M | |
| C1502 | Electrolytic, 220 μ F, 35V, +30%, -10% | * QET51VR-227 | * C 314937-01 |
| C1508 | Polypropylene, 5600 pF, 100V | QFP32AJ-562M | |
| C1523 | Electrolytic, 33 μ F, 160V | * QET52CR-336 | * C 314938-01 |
| C1526 | Metalized Polypropylene, 5000 pF, 1600V | * QFZ0081-5001S | * C 314939-01 |
| C1529 | Metalized Polypropylene, .53 μ F, 200V | QFZ0067-534S | |
| C1530 | Electrolytic, 2.2 μ F, 50V | QEN61HM-225Z | |
| C1531 | Electrolytic, 470 μ F, 25V, +30%, -10% | * QET51ER-477 | * C 314940-01 |
| C1534 | Metalized Polypropylene, 1500 pF, 1600V, ±3% | * QFZ0081-1501S | * C 314941-01 |
| C1535 | Mylar, .082 μ F, 100V, ±10% | * QFM72AK-823M | * C 314942-01 |
| C1541 | Electrolytic, 1 μ F, 160V, +30%, -10% | QET62CR-105Z | |
| C1551 | Electrolytic, 1000 μ F, 16V, +30%, -10% | * QET51CR-108 | * C 314943-01 |
| COILS | | | |
| L1201 | Peaking Coil, 820 μ H | A76186-820Z | |
| L1203 | Peaking Coil, 270 μ H | A76186-270Z | |
| L1301 | Peaking Coil, 22 μ H | A76186-22Z | |
| L1302 | Peaking Coil, 22 μ H | A76186-22Z | |
| L1303 | Peaking Coil, 22 μ H | A76186-22Z | |
| L1521 | Lin. Coil | * CE40052-001 | |
| L1522 | W. Coil | * CE40140-00F | |
| L1523 | HVT Choke | CE40037-560 | |
| L1524 | Heater Choke | CJ30030-100 | |
| TRANSFORMERS | | | |
| T1201 | Trap, 3.58 MHz | A75537-0 | |
| T1301 | BP, 3.58 MHz | CE40476 | |
| T1521 | SW Drive | * CE40361-00B | * C 314944-01 |
| MISCELLANEOUS | | | |
| DL1201 | Delay Line | CE40535-001 | |
| S1201 | Service Switch (Lever) | CEX40078-001 | |
| X1301 | Crystal | A76351-D | |

*SAFETY COMPONENTS — Use EXACT replacement ONLY.

Monitor parts may be secured locally. JVC part numbers have been provided for your convenience. ONLY Commodore part numbers (C 314xxx-xx) will be available from Commodore at this time.

CONTROL PCB ASSEMBLY # GE-1003A (4/6)

| LOCATION | DESCRIPTION | JVC PART # | COM PART # |
|---------------------------|------------------------------|--------------|------------|
| VARIABLE RESISTORS | | | |
| R1854 | Cont, 10K | CEX40206-B14 | |
| R1860 | Bright, 10K | CEX40206-B14 | |
| R1863 | Sub Bright, 4.7K | QVZ3507-472 | |
| R1866 | Tint, 10K | CEX40206-B14 | |
| R1869 | Color, 10K | CEX40206-B14 | |
| R1871 | Volume, 10K | CEX40205-B14 | |
| R1875 | V. Hold, 10K | CEX40205-A14 | |
| R1877 | H. Position, 1K | CEX40205-B13 | |
| MISCELLANEOUS | | | |
| L1851 | Peaking Coil, 820 μ H | A76186-820Z | |
| SW1821 | Slide Switch (Signal Select) | CEX40325-001 | |
| J1821 | US Pin Jack (Video In) | C39207-004 | |
| J1822 | US Pin Jack (Audio In) | C39207-003 | |

Monitor parts may be secured locally. JVC part numbers have been provided for your convenience. ONLY Commodore part number (C 314xxx-xx) will be available from Commodore at this time.

CRT SOCKET PCB ASSEMBLY #GE-1003A (3/6)

| LOCATION | DESCRIPTION | JVC PART # | COM PART # |
|---------------------------|---|------------------------------|---------------|
| TRANSISTORS | | | |
| Q1351 | | 2SC2611 | |
| Q1352 | | 2SC2611 | |
| Q1353 | | 2SC2611 | |
| DIODES | | | |
| D1351 | Silicon | 1RM-2C | |
| RESISTORS | | | |
| R1357- | Oxide Metal Film, 12K | QRG029J-123 | |
| R1359 | | | |
| R1360- | Composition, 3.3K | QRZ0039-332 | |
| R1362 | | | |
| R1378 | ZN | ERZ-C05ZK271 | |
| VARIABLE RESISTORS | | | |
| R1352 | B Cut Off, 5K | CEX40302-053 | |
| R1354 | R Cut Off, 5K | CEX40202-053 | |
| R1356 | G Cut Off, 5K | CEX40202-053 | |
| R1369 | R Drive, 200 | CEX40202-022 | |
| R1371 | G Drive, 200 | CEX40202-022 | |
| CAPACITORS | | | |
| C1351 | Electrolytic, 4.7 μ F, 250V | * QET52ER-475 | * C 314945-01 |
| C1352 | Ceramic, 1000 pF, 3K V | QCZ9017-102M | |
| C1356 | Electrolytic, 4.7 μ F, 250V | QET52ER-475 | |
| MISCELLANEOUS | | | |
| L1351 | Peaking Coil, 180 μ H CRT Socket | QLL043K-181 * CE40085-00A | * C 314946-01 |

*SAFETY COMPONENTS — Use EXACT replacement ONLY.

Monitor parts may be secured locally. JVC part numbers have been provided for your convenience. ONLY Commodore part number (C 314xxx-xx) will be available from Commodore at this time.

REGULATOR PCB ASSEMBLY #GE-1003A (2/6)

| LOCATION | DESCRIPTION | JVC PART # | COM PART # |
|----------------------------|---|----------------|---------------|
| INTEGRATED CIRCUITS | | | |
| IC1901 | | * STR3125 | * C 314947-01 |
| DIODES | | | |
| D1504 | Bridge Rectifier | * 1B4B42 | * C 314948-01 |
| D1901- D1904 | Silicon | * 1S1887A | * C 314949-01 |
| RESISTORS | | | |
| R1902 | Non-flammable, 2, 7W | * QRF076K-2R0 | * C 314950-01 |
| R1907 | Metal Film, 4.7, 2W | * QRX029J-4R7A | * C 314951-01 |
| R1910 | Composition, 6.8M, 1/2W | QRZ0039-685 | |
| CAPACITORS | | | |
| C1901- C1903 | Ceramic, 4700 pF | * QCZ9021-472U | |
| C1904 | Electrolytic, 470 μ F, 200V, $\pm 20\%$ | * QEU720M-477M | * C 314952-01 |
| C1906 | Metal Film, .1 μ F | * QFZ9020-104M | |
| C1907 | Electrolytic, 10 μ F, 160V, +30%, -10% | QET52CR-106 | |
| C1908 | Metal Film, .1 μ F | QFZ9020-104M | |
| C1910- C1911 | Ceramic, .1 μ F | QCZ9020-472M | |
| MISCELLANEOUS | | | |
| L1901 | Coil — Line Filter | * CE40247-00A | |
| T1901 | Power Transformer | * CE40489-00A | * C 314953-01 |
| F1901 | Fuse, 4A | * QMF66U1-4ROS | * C 314954-01 |
| F1902 | Fuse, 1A | * QMF66U1-1ROS | * C 314955-01 |
| TH1901 | Thermistor | * CEX40137-001 | * C 314956-01 |

*SAFETY COMPONENTS — Use EXACT replacement ONLY.

1702 Schematic Notes

VOLTAGE & WAVEFORM NOTATIONS — Voltage readings and waveform measurements were taken with a color video signal injected at the video input terminal. Each variable resistor was set to condition at time of shipment. After adjustments have been made, the figures will vary and the figures should be used for reference only.

VOLTAGE READINGS — Multimeter set at $20K\Omega/\text{volt DC}$.
All values given are DC voltages.

REFERENCE WAVEFORMS — Scope sweep speed set at:
Hor - $20 \mu\text{s/div}$ Vert - 5V/div ;
Unless other speed is specified.

SCHEMATIC NOTES — Unless specified otherwise:

Resistors : All values are in ohms, 1/6 watt carbon.

Capacitors: Values of 1 or higher are pF.

Values less than 1 are μF , 50V, ceramic.

Electrolytic values are in μF , NP indicates non-polar (bipolar).

Inductors: Values are in uH.

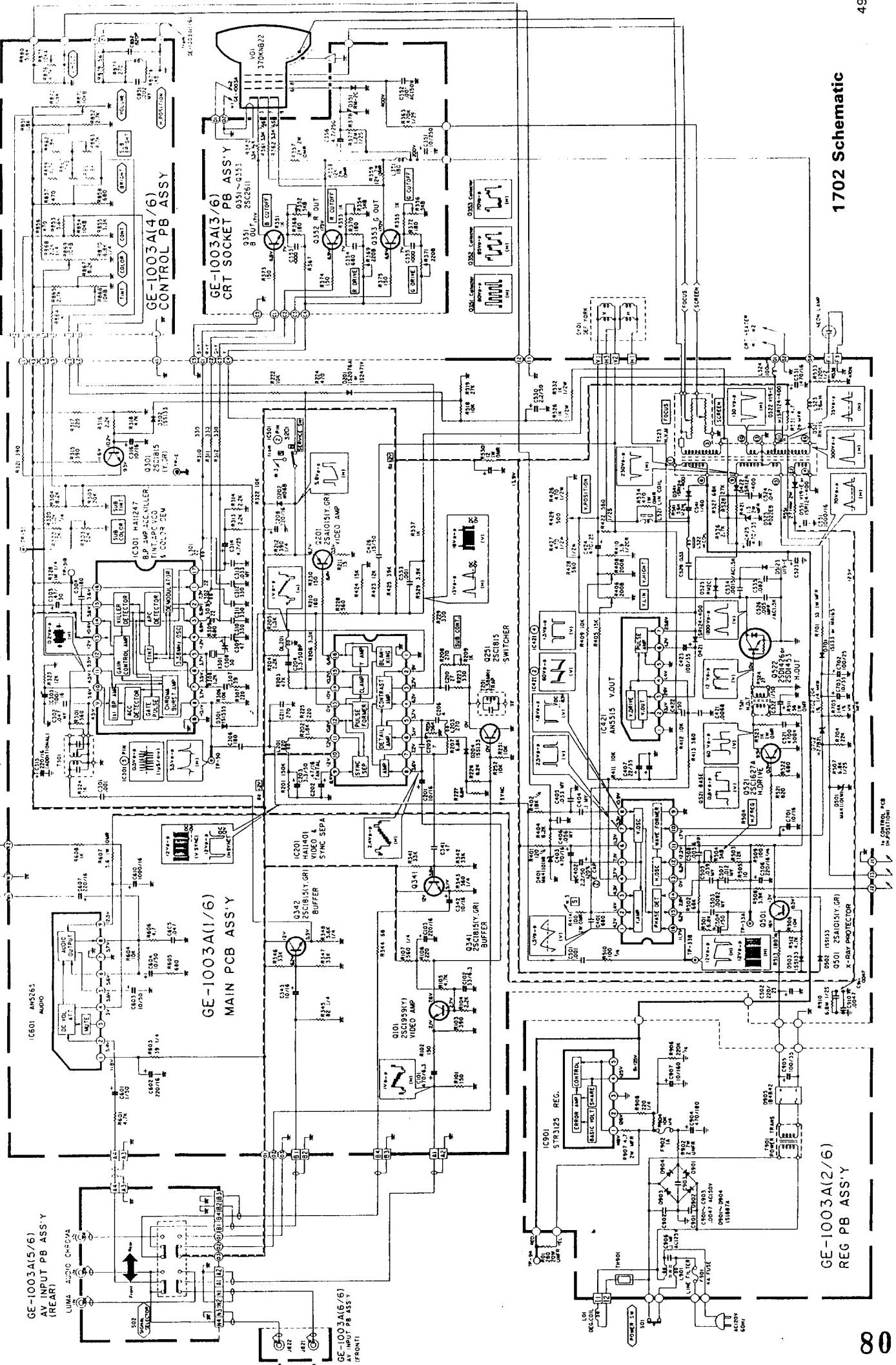
 indicates a test point connection

 indicates chassis ground

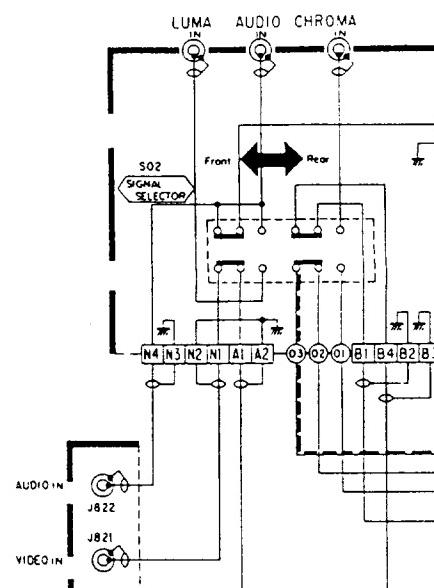
Hz indicates cycles per second

SAFETY — For safety, maximum reliability, and continued good performance, use specified replacement parts. All safety items have been identified with the symbol *. FR is an abbreviation for FUSIBLE RESISTOR . FR's act like fuses and are used as safety items. They are to be replaced with specified parts.

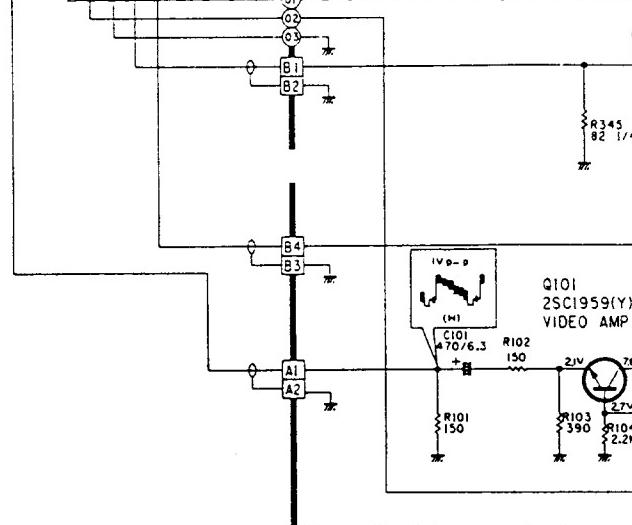
NOTICE — This circuit diagram and the circuit constants are subject to change for improvement without notice.



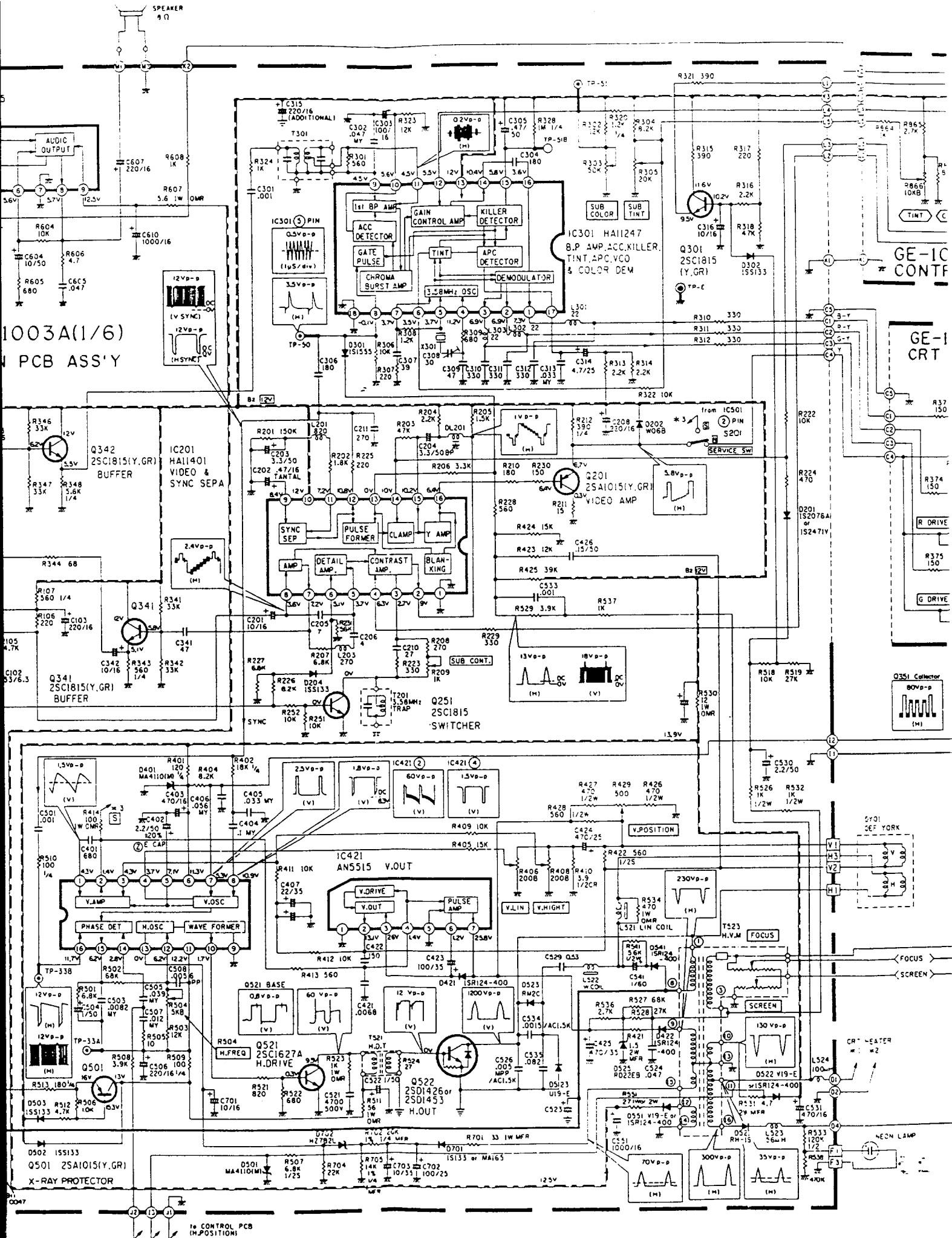
GE-1003A(5/6)
AV INPUT PB ASS'Y
(REAR)

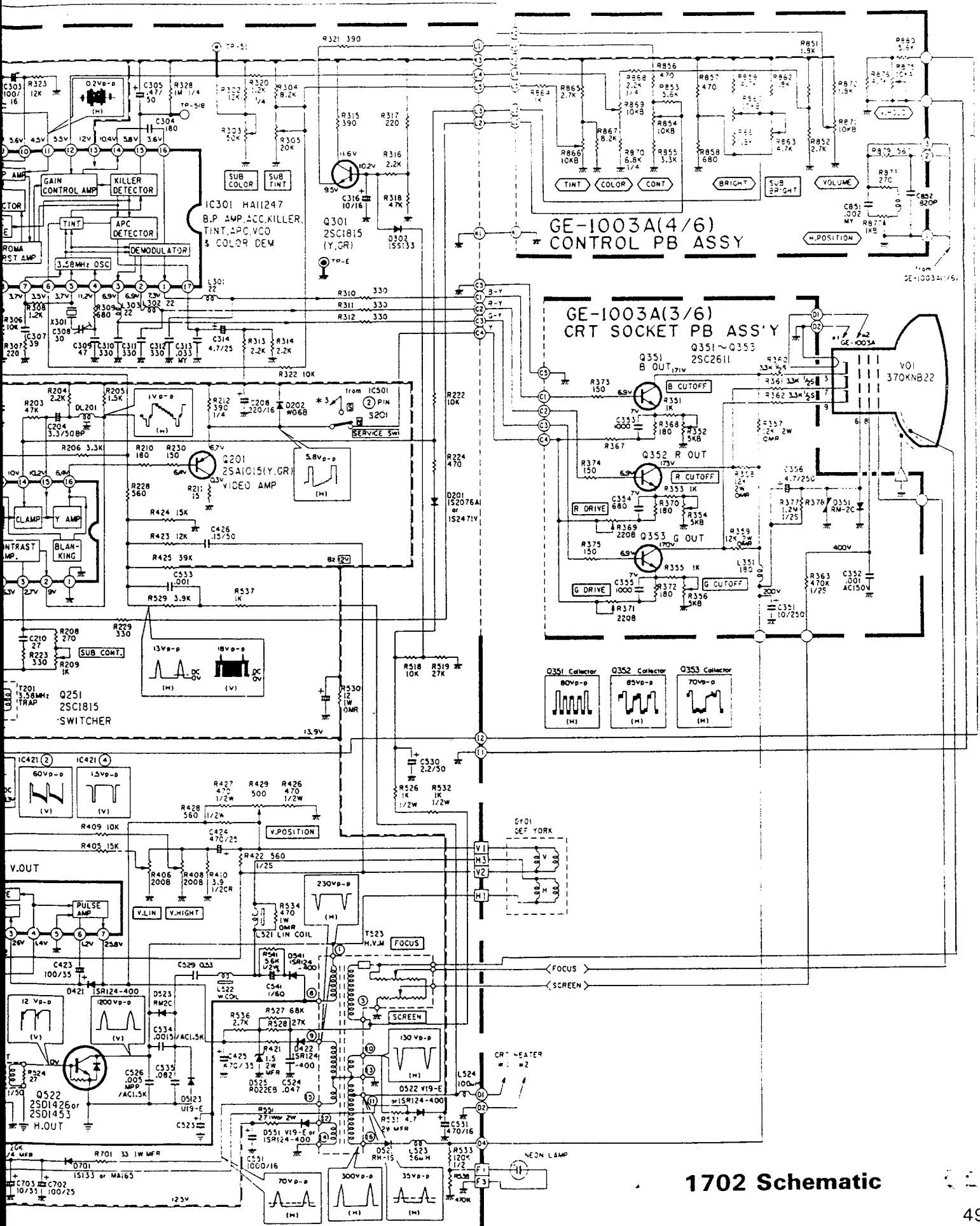


GE-1003A(6/6)
AV INPUT PB ASS'Y
(FRONT)



GE-1003A(1/6)
MAIN PCB ASS'Y





1702T Unique Parts

Monitor parts may be secured locally. JVC part numbers have been provided for your convenience. ONLY Commodore part number (C 314xxx-xx) will be available from Commodore at this time.

1702T

| LOCATION | DESCRIPTION | JVC PART # | COM PART # |
|----------------------|---------------------------|--------------------------------|---------------|
| CHASSIS PARTS | | | |
| V01 DY01 | Picture Tube Def. Yoke | * 370NVB22-AB * CE20037-00A | * C 314957-01 |

*SAFETY COMPONENTS — Use EXACT replacement ONLY.

MAIN PCB ASSEMBLY #GE-1005A

| LOCATION | DESCRIPTION | JVC PART # | COM PART # |
|---------------------------|--|-----------------------------------|---------------|
| DIODES | | | |
| D1402 D1521 | | RD6.8E (B) * RH-1S | * C 314958-01 |
| RESISTORS | | | |
| R1421 R1533 | Metal Film, 6.8, 2W, ±5% Ceramic, 120K, 1/2W, ±5% | * QRX029J-6R8A * QRD121J-124SY | * C 314959-01 |
| VARIABLE RESISTORS | | | |
| R1305 | Sub Tint, 5K | QVZ3230-053 | |
| CAPACITORS | | | |
| C1526 | Metalized, Polypropylene, 6300 pF, 1600V, +3% | * QFZ0081-6301S | * C 314960-01 |

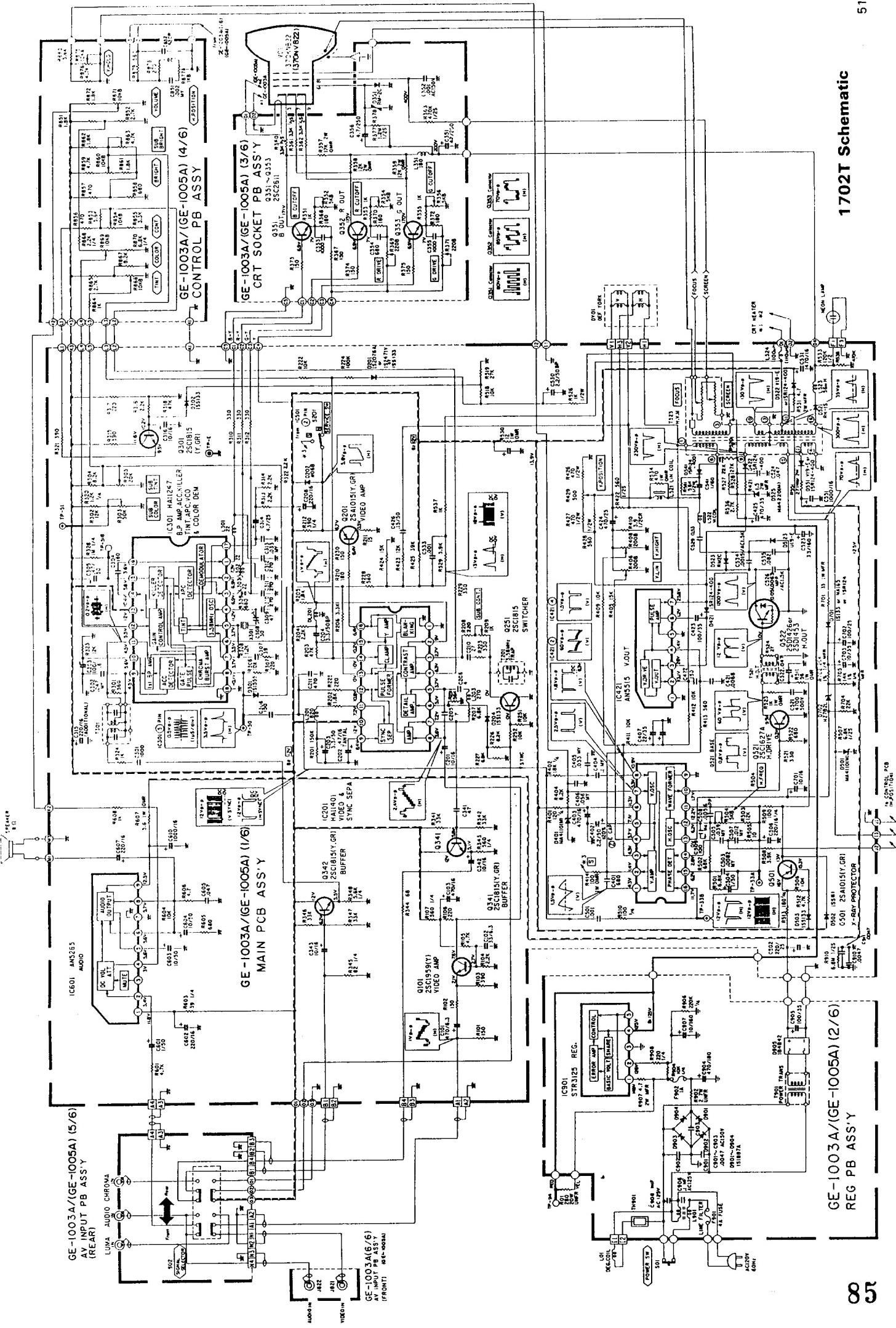
*SAFETY COMPONENTS — Use EXACT replacement ONLY.

REG. PCB ASSEMBLY #GE-1005A

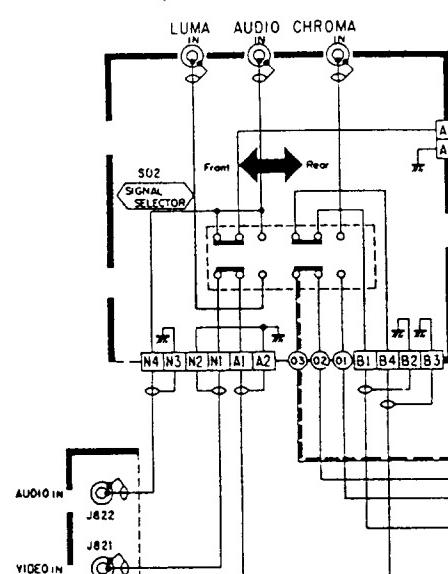
| LOCATION | DESCRIPTION | JVC PART # | COM PART # |
|------------------|-------------------------|----------------|---------------|
| RESISTORS | | | |
| R1904 | Ceramic, 10K, 1/2W, ±5% | * QRD1295-103S | * C 314961-01 |

*SAFETY COMPONENTS — Use EXACT replacement ONLY.

1702T Schematic

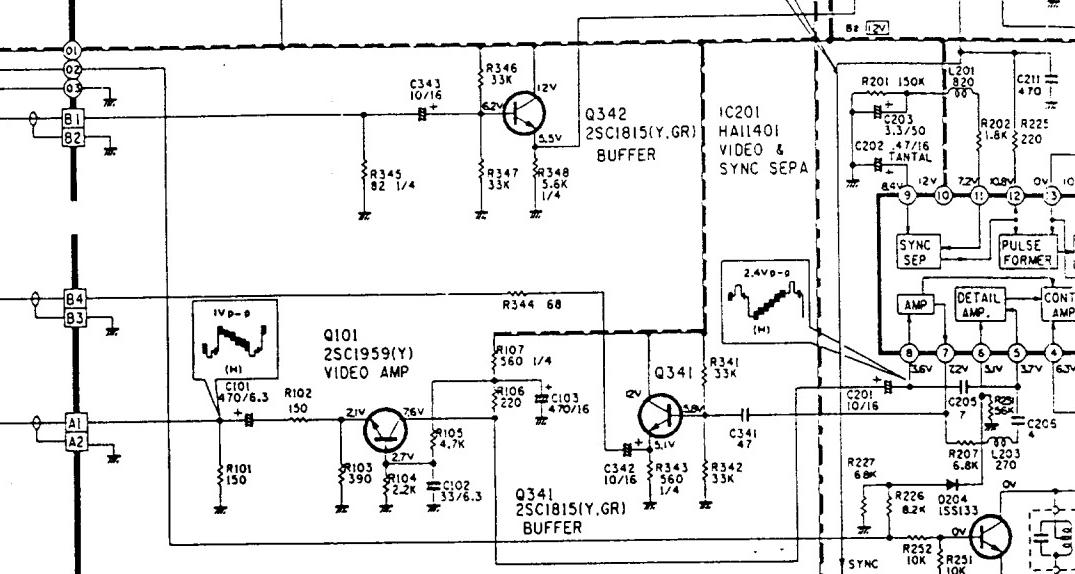


GE-1003A/(GE-1005A) (5/6)
AV INPUT PB ASS'Y
(REAR)

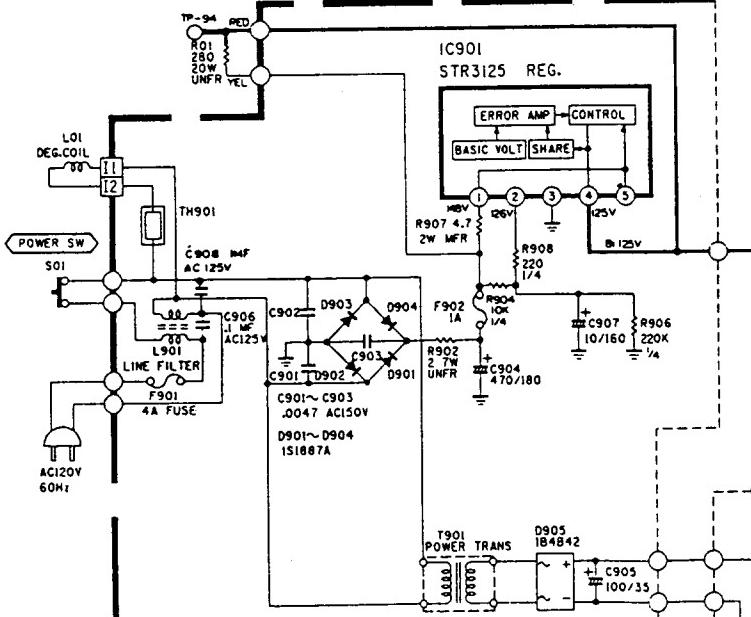


GE-1003A(6/6)
AV INPUT PB ASS'Y
(FRONT) (GE-1003A)

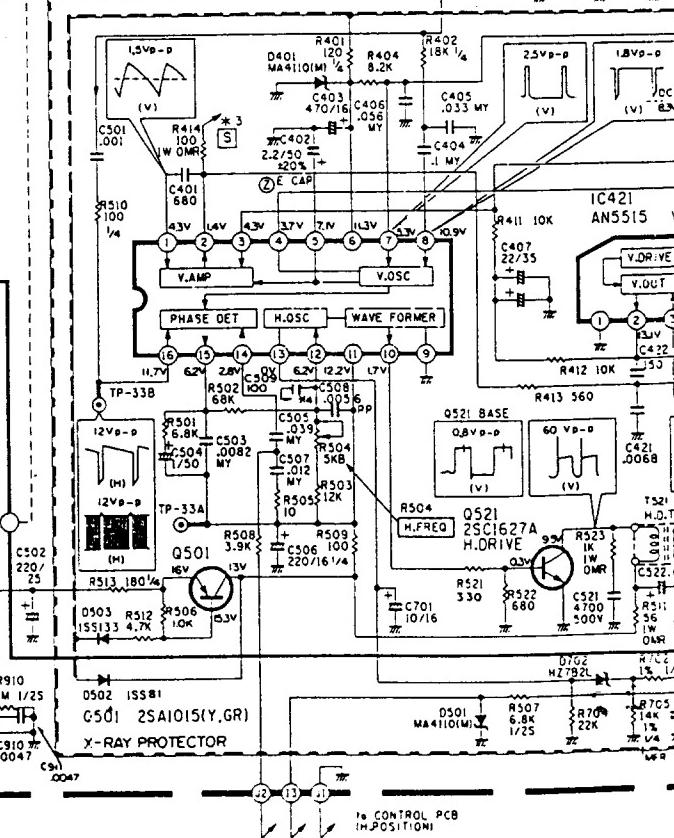
GE-1003A/(GE-1005A) (1/6)
MAIN PCB ASS'Y

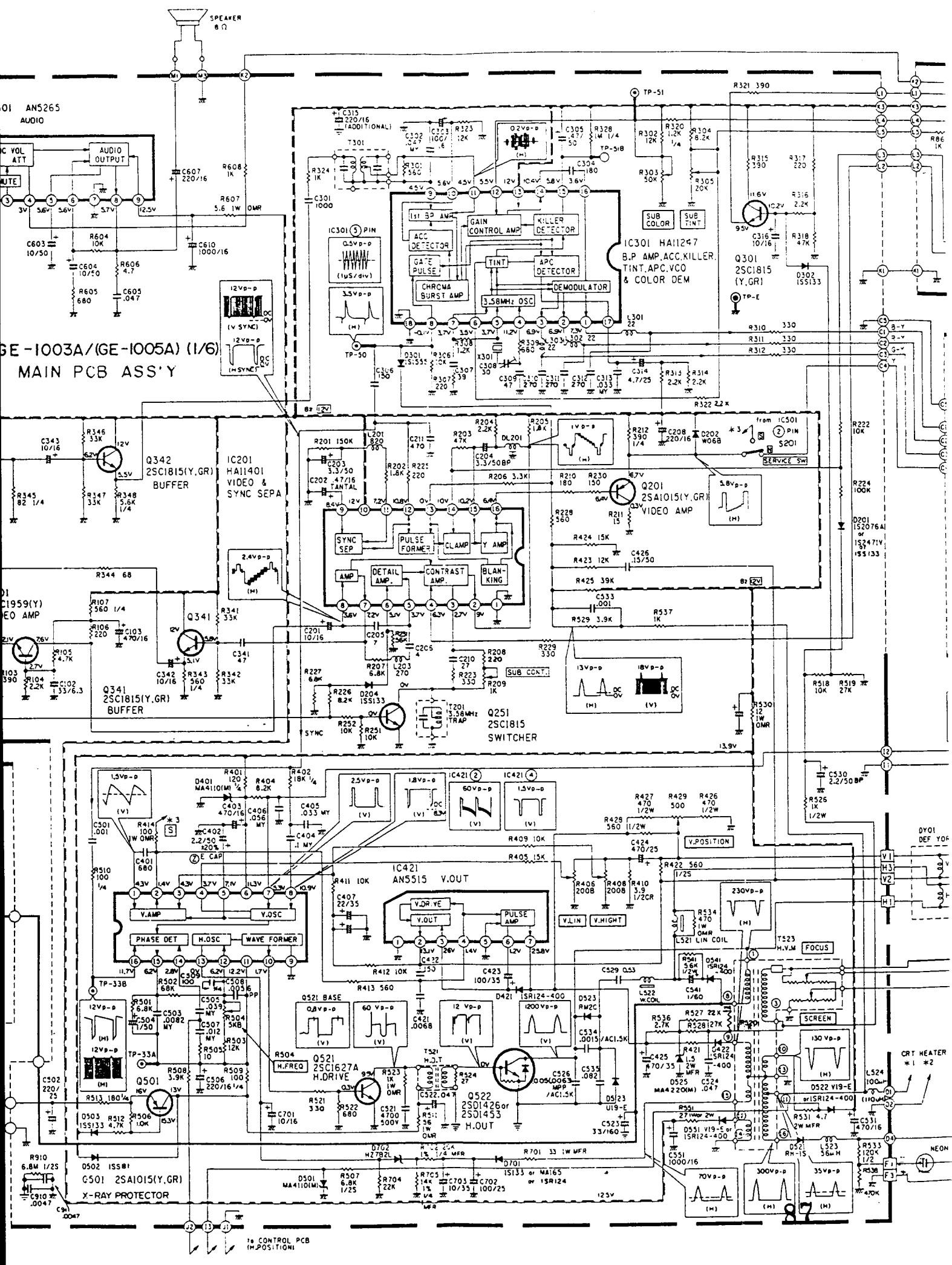


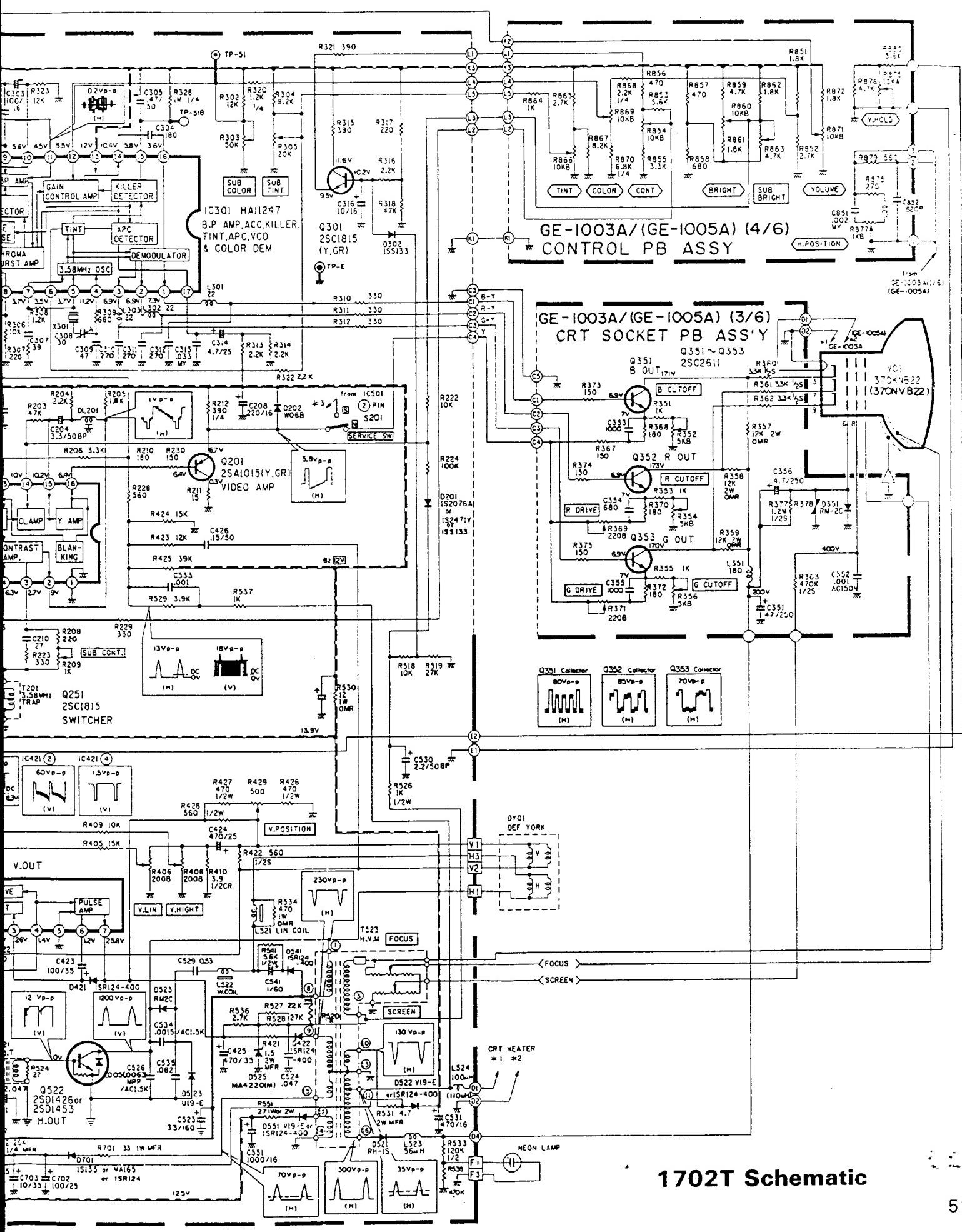
IC901



GE-1003A/(GE-1005A) (2/6)
REG PB ASS'Y

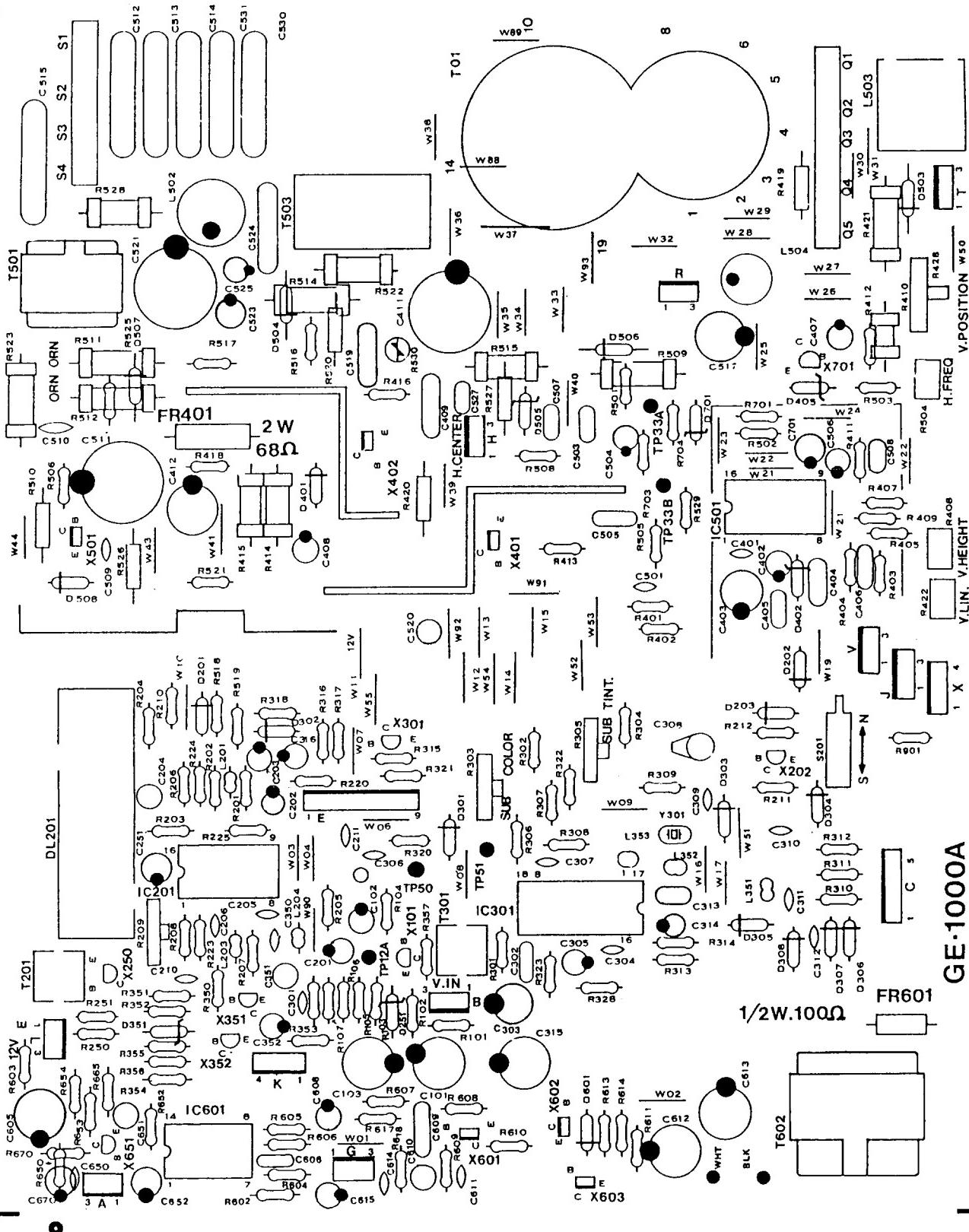




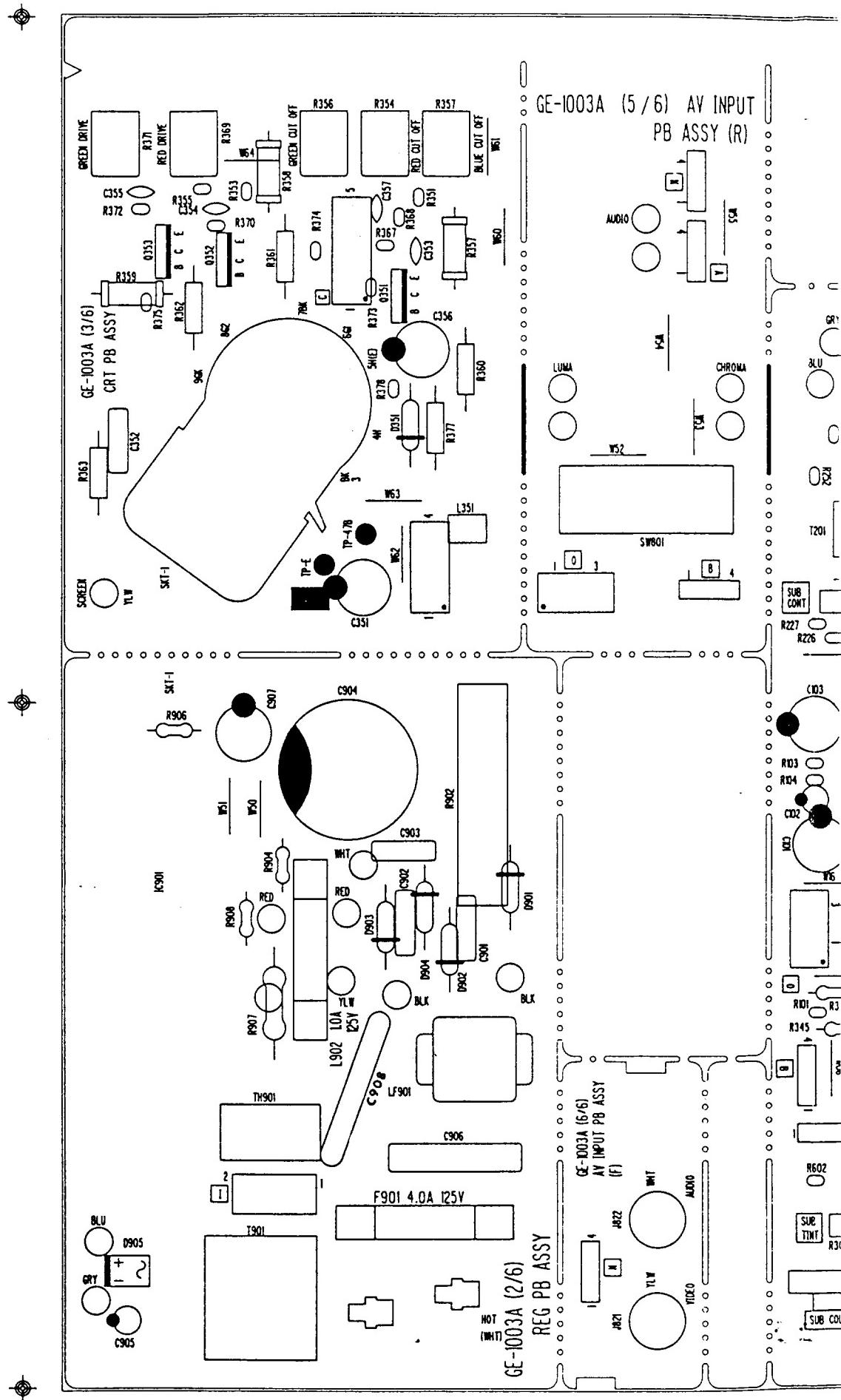


1702T Schematic

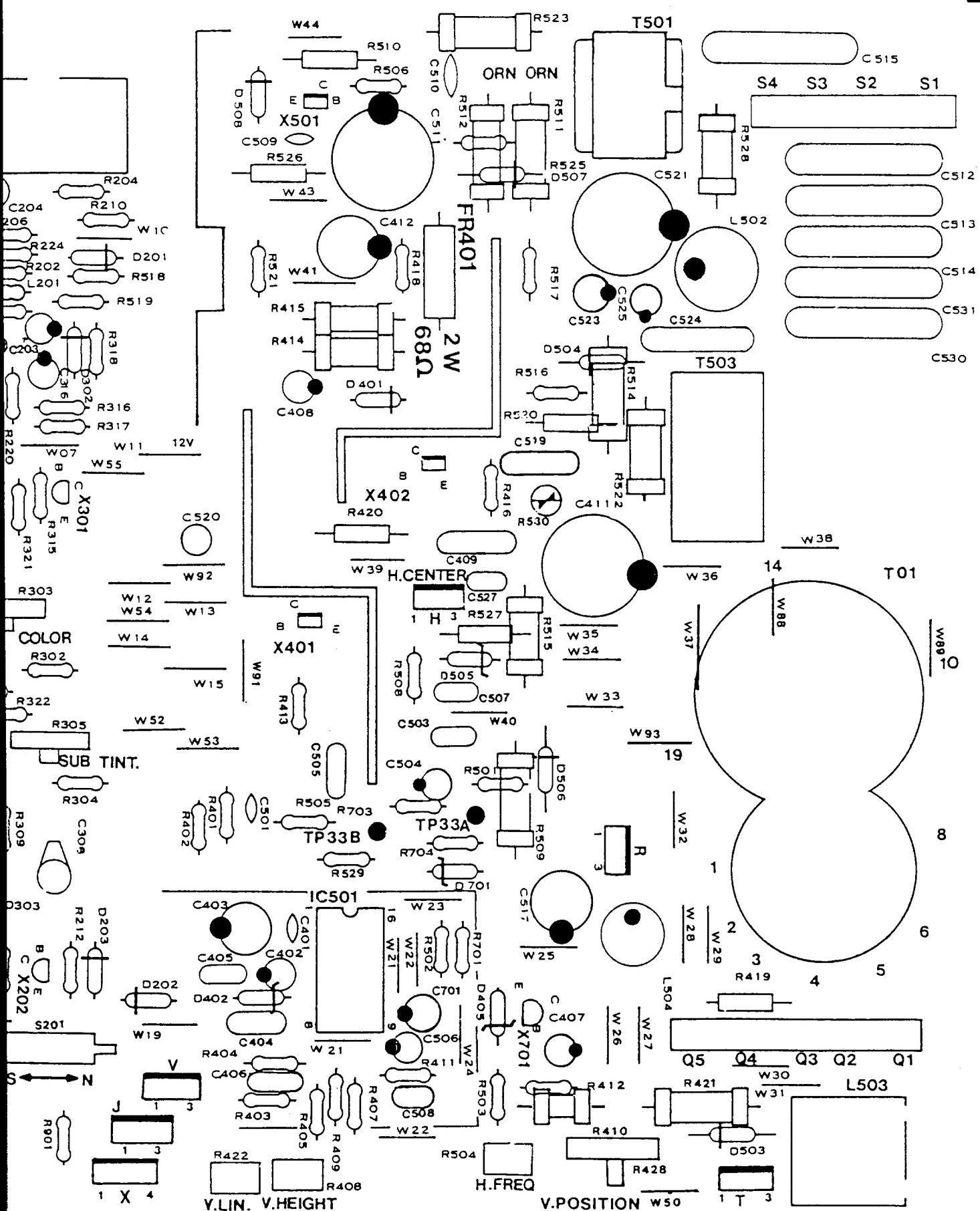
1701 Board Layout



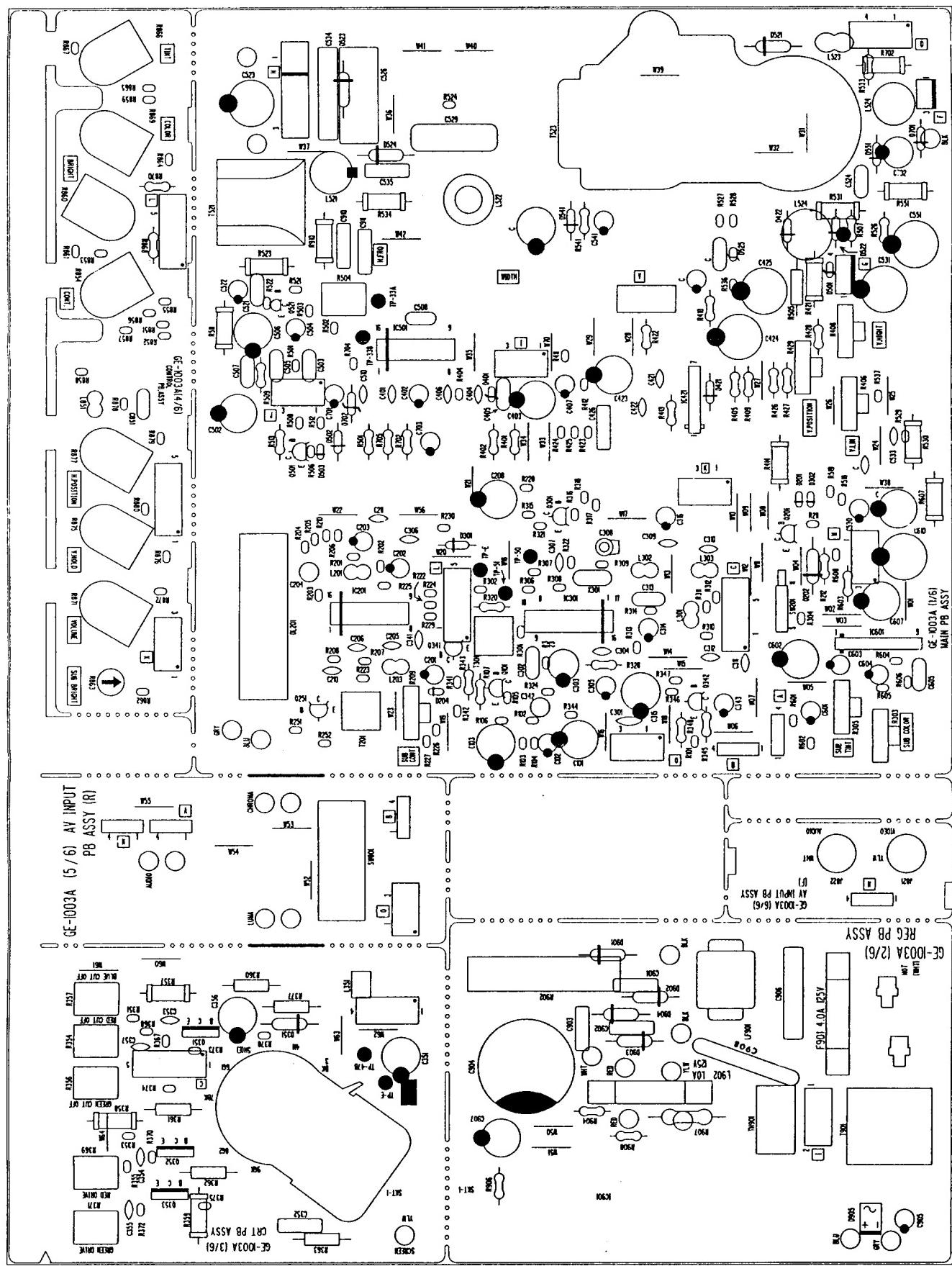
GEF-1000A

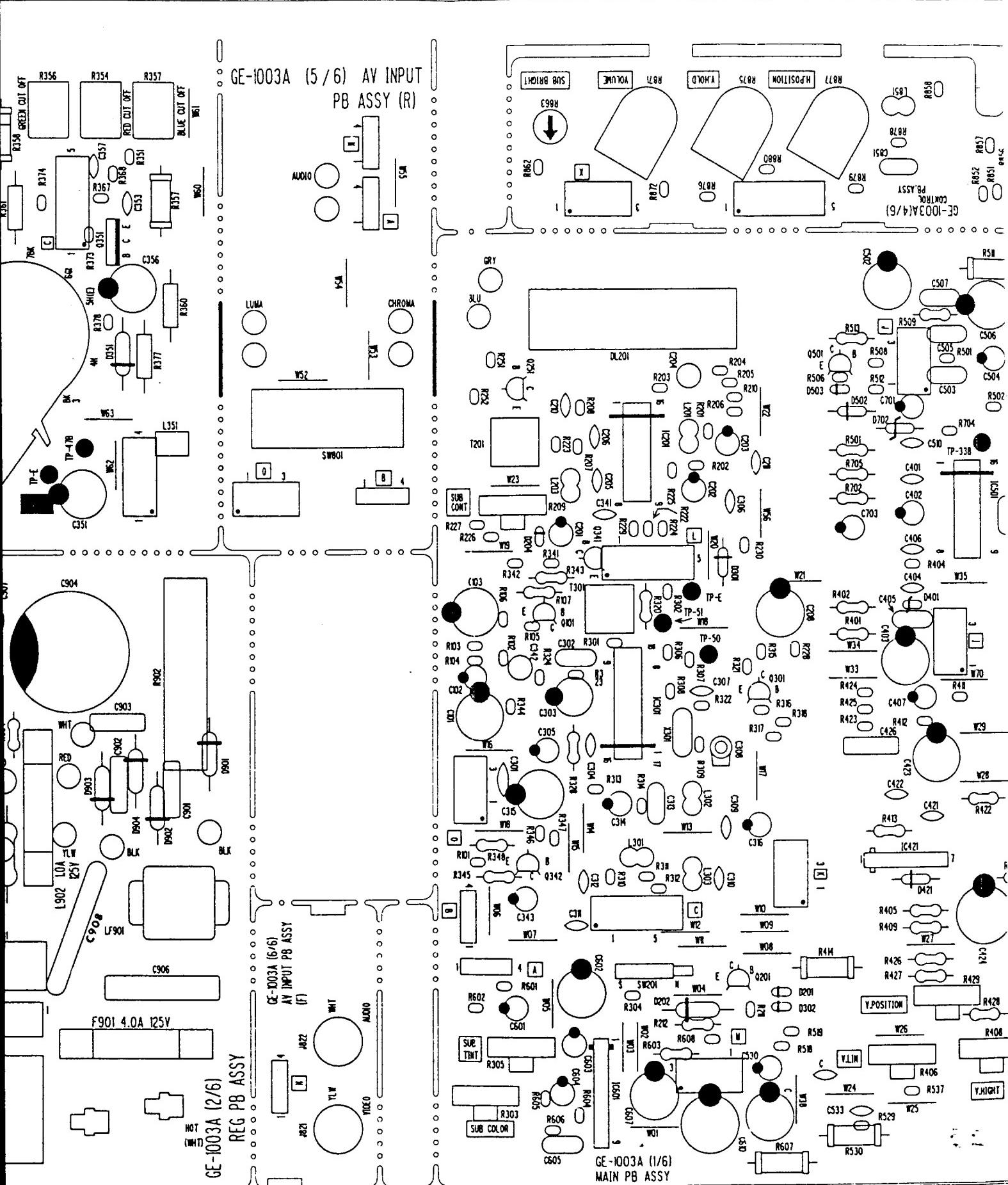


1701 Board Layout

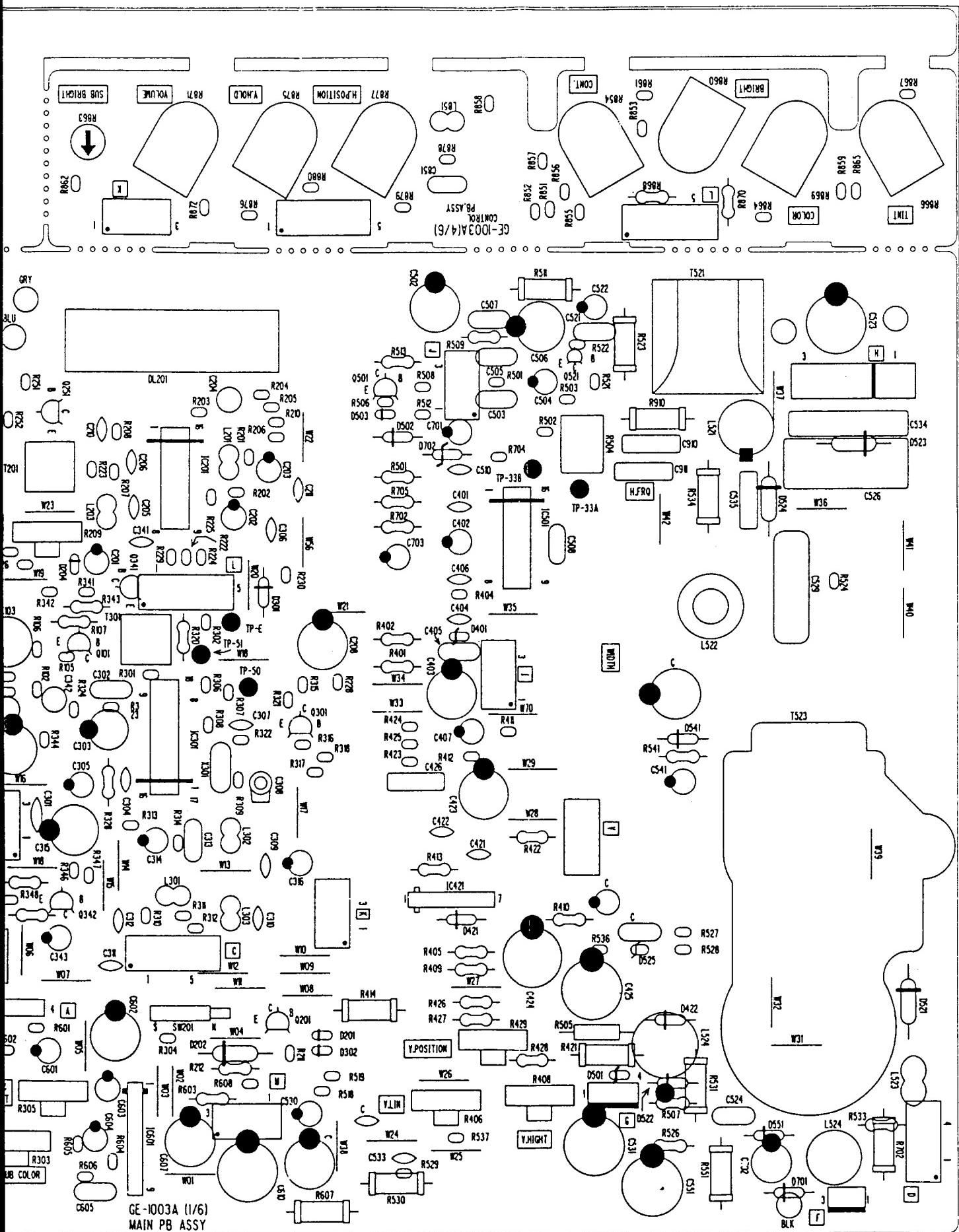


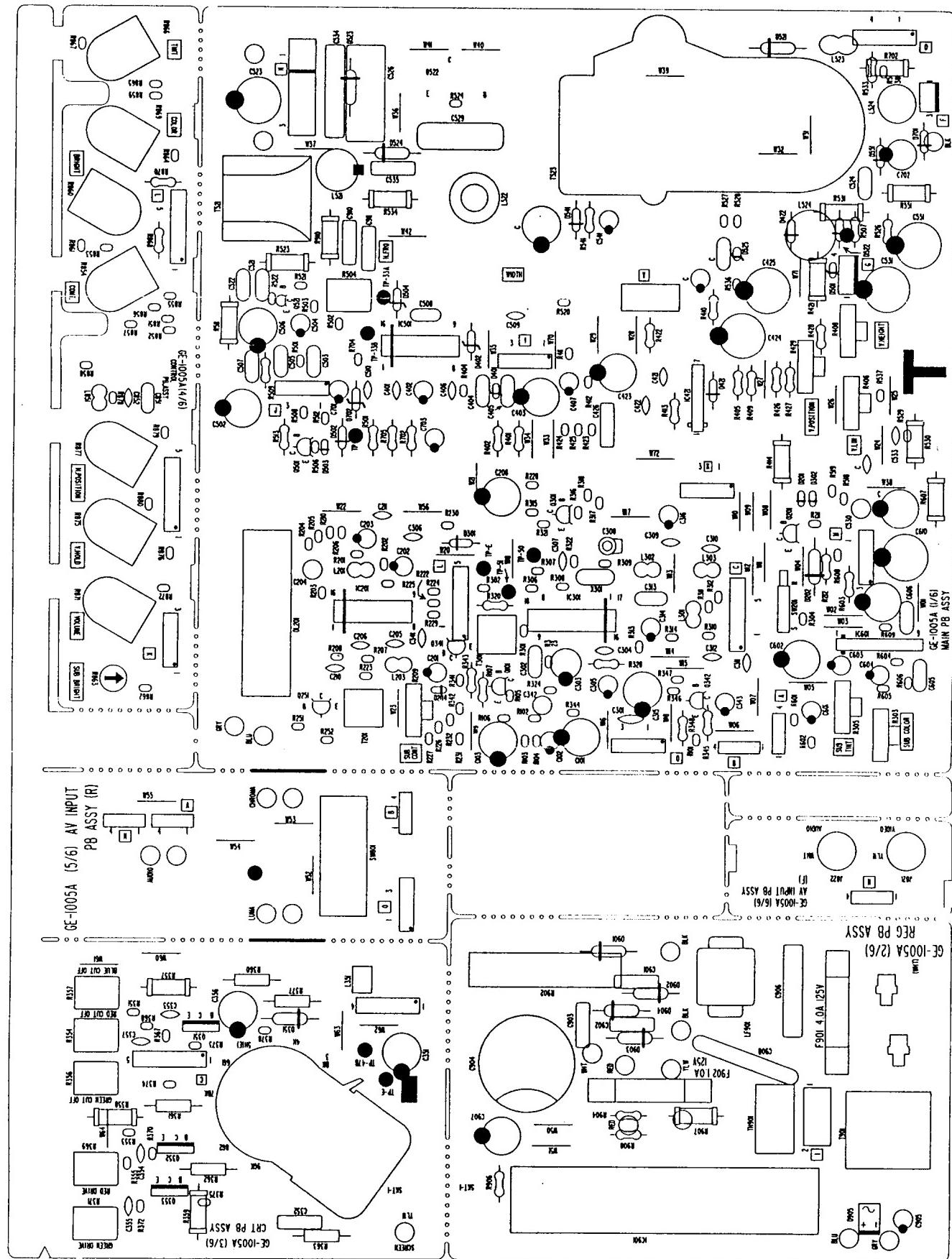
1702 Board Layout

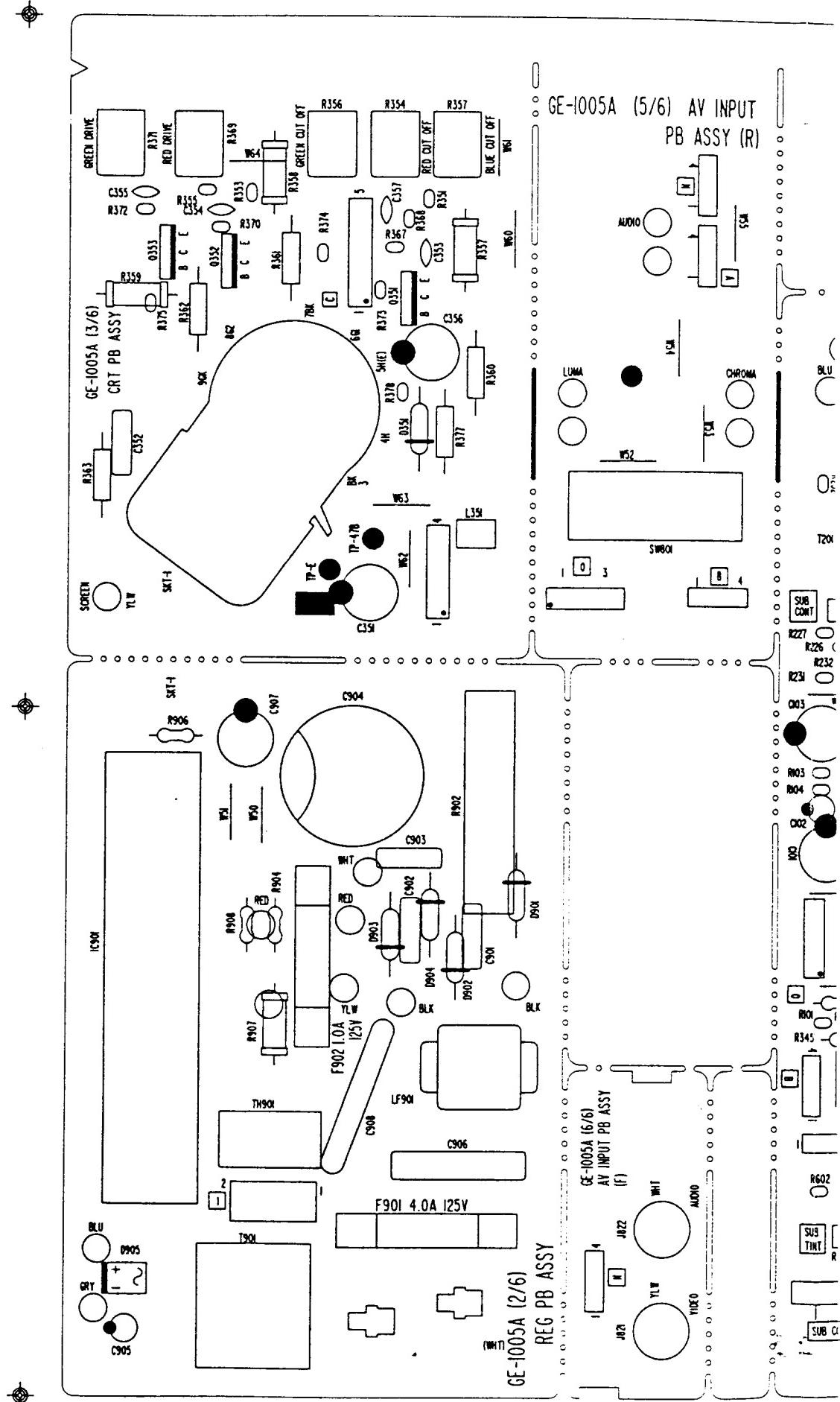


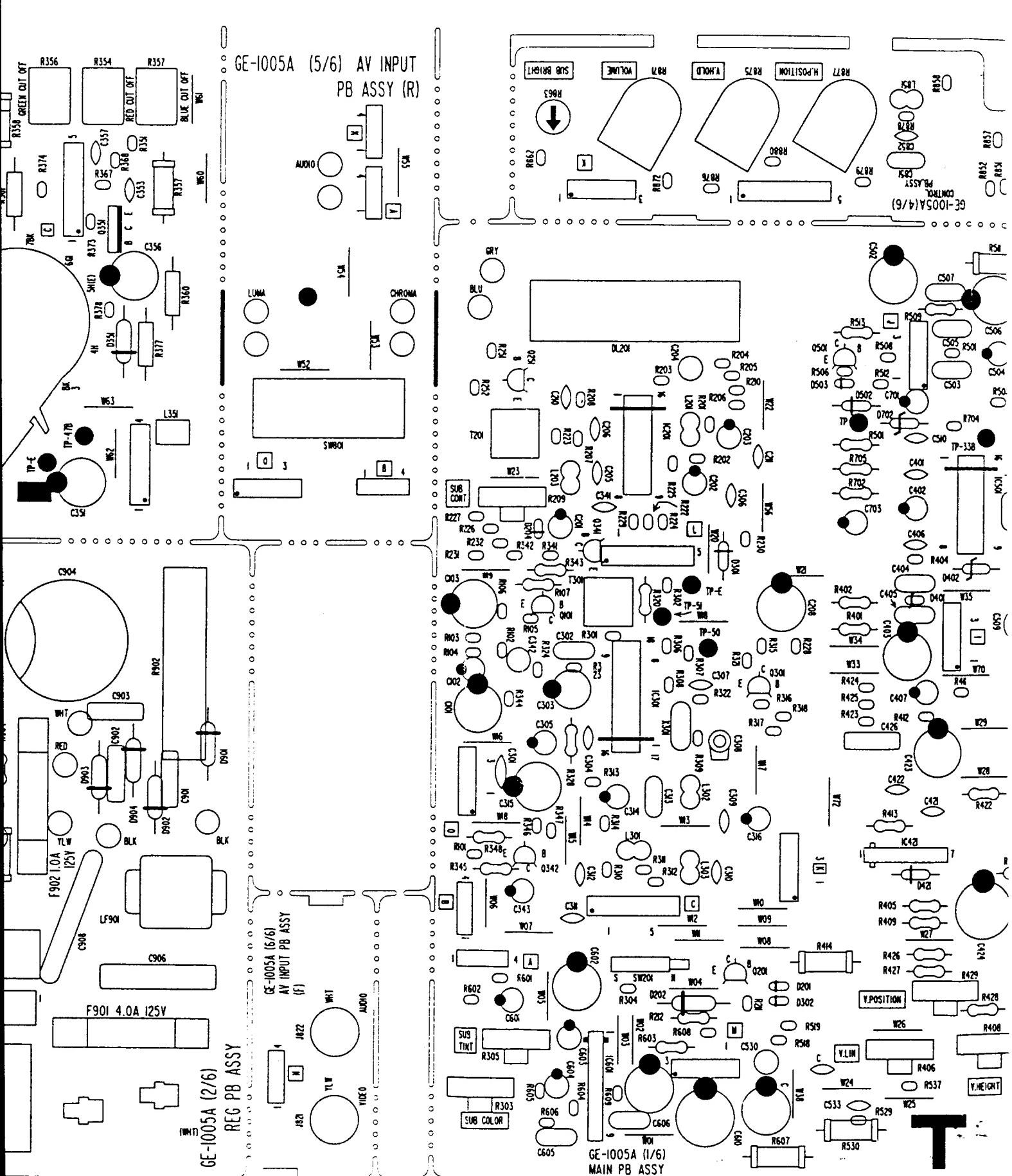


1702 Board Layout

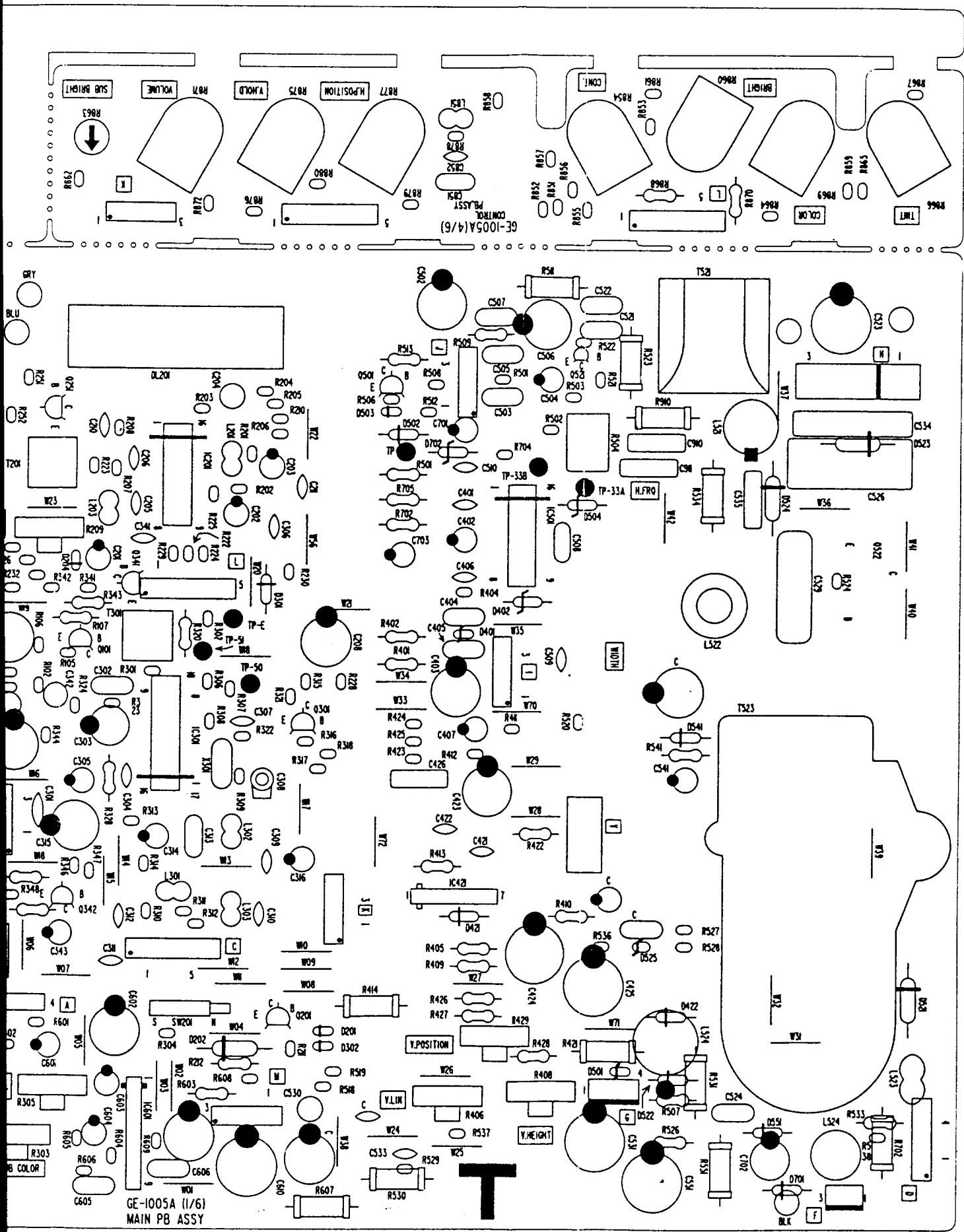


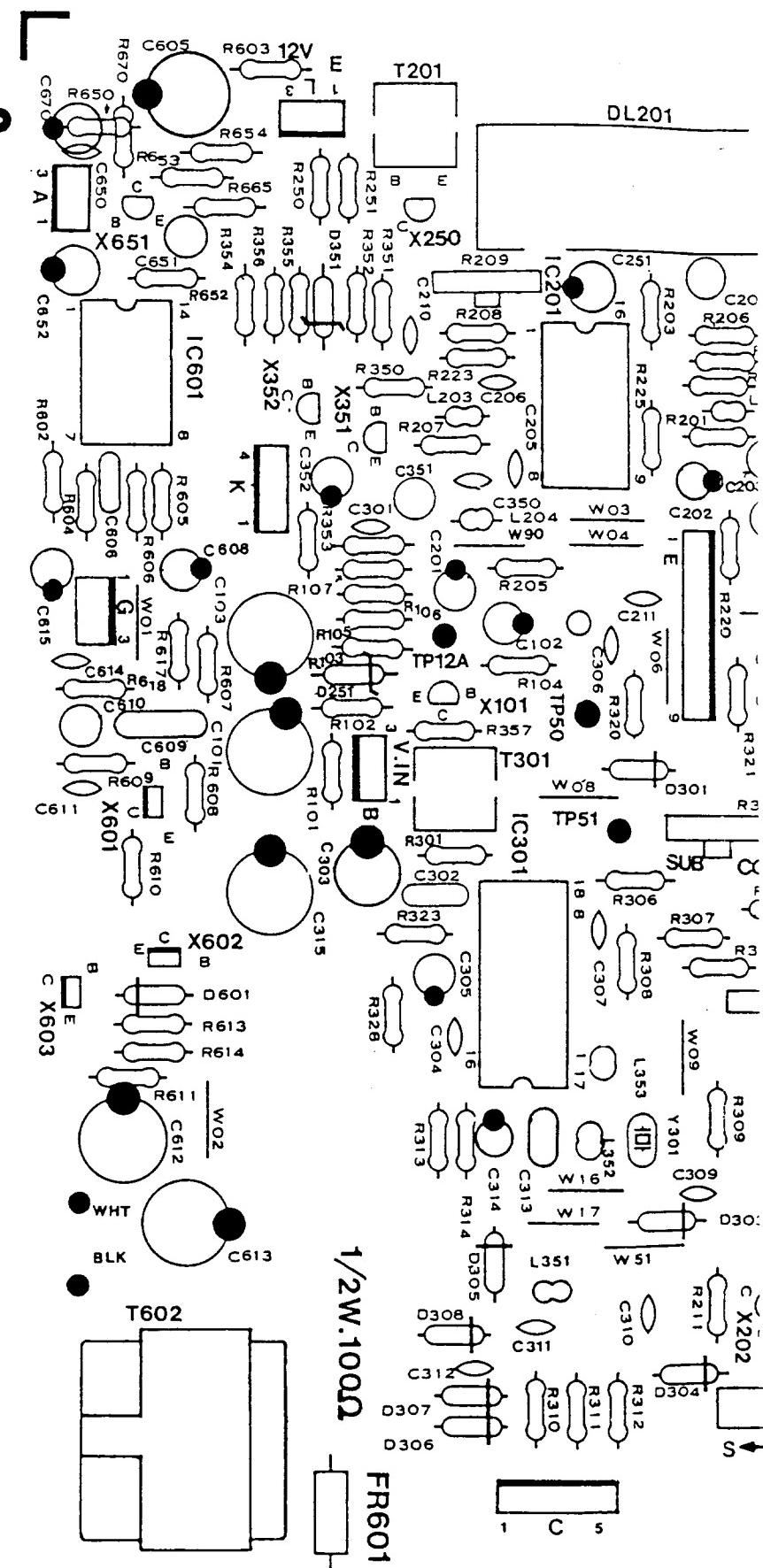






1702T Board Layout





GE-1000A

